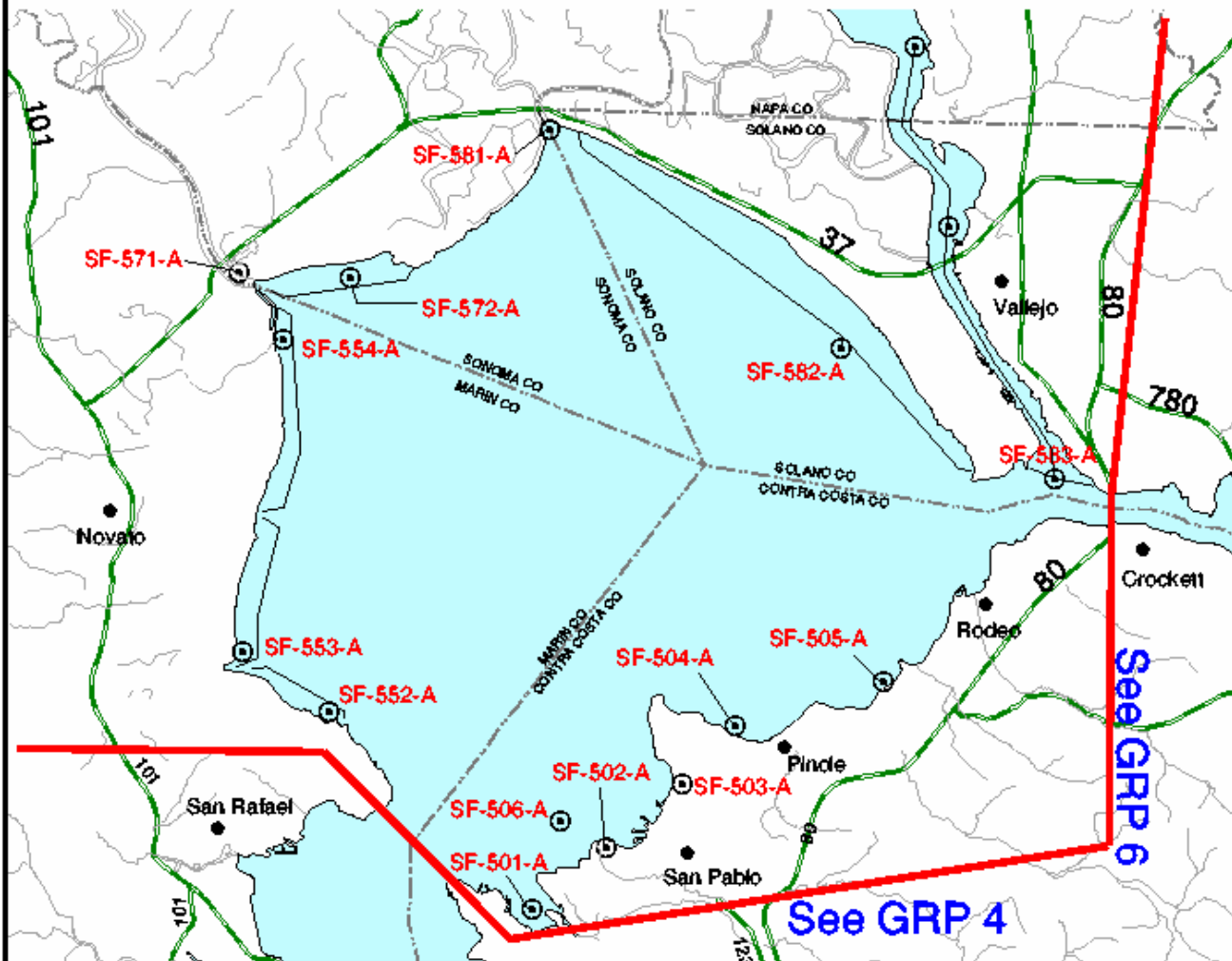




SF Geographic Response Area 5 San Pablo Bay Environmentally Sensitive Sites



Note: Marker symbols (⊙) are only site reference and do not indicate full extent of sites.

Geographic Response Plan - 5

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GRP 5 Site Index/Response Actions

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
SF-501		Castro Creek and Marshes			
SF-502		San Pablo Creek Marshes			
SF-503		Pinole Pt. Marshes - South			
SF-504		Pinole Pt. Marshes - North			
SF-505		Pinole Creek and Wetlands			
SF-506		San Pablo Eelgrass Beds			
SF-552		China Creek Marshes			
SF-553		Gallinas Creek Marshes			
SF-554		Novato Creek Marshes			
SF-571		Petaluma River Marshes			
SF-572		Tolay Creek Marshes			
SF-581		Sonoma Creek/Napa Slough			
SF-582		N. E. San Pablo Bay			
SF-583		Napa River Marshes			

GRA/GRP-5 Response Resources by Site and Sub-Strategy

Site Site Name

sub-strategy PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT

Harbor Boom	Swamp boom	Other boom/TYPE	Sorbant boom	Anchoring No	type of gear	Boom boat	Skiff	Skimmer No	Type	Special Equipment and kinds	(and notes)	deploy staff	Staff to tend
2-501 Castro Creek and Marshes													
. 1 -	4200	5800		12	12+22+/Danforth + 20' chain	4	0	1	open water			16	
. 2 -	0	1800		4	4/22+/danforth + chain	1	1			very shallow strandable Bboat		3	
2-502 San Pablo Creek Marshes													
. 1 -	2000	2000		80	80	4	4					16	
2-503 Pinole Pt. Marshes-South													
. 1 -	6400	200		4	4 30 lb Danforth anchors	1	4	1	SSS			14	
2-504 Pinole Pt. Marshes - North													
. 1 -	2000	500		8	8-30 pound Danforth	1	1					14	
2-505 Pinole Creek and Wetlands													
. 1 -	0	200		2	2-20#	1	1					4	
. 2 -	0	3500		8	8/22/danforths & stakes	2	3					13	8
2-506 San Pablo Bay Eelgrass Bed													
. 1 -	2000			6	6	3						4	
2-552 China Camp Marsh													
. 1 -	0					2	0	2	self-			9	
. 2 -	1000			8	6-8, 25 lb. Danforth	3	0	0				13	
. 3 -	0	2700		12	15+lb. Danforth	2	1	0		fence boom materials, oil snare, stakes		10	6
. 4 -	0	10400	0	65	15+ lb. Danforth	5	2	0		0 shallow draft boats		23	
2-553 Gallinas Creek Marshes													
. 1 -	1500			6	6x25 lb. Danforths	1	0	1	SSS/weir	stakes to anchor boom in marsh		7	
. 2 -	0	350			stakes	1	0	0		stakes, contractor fence, oil snare		7	
. 3 -	1000			6	6x 20 lb.			1	SSS or	Storage cap. Necessary		7	
2-554 Novato Creek Marshes													
. 1 -	500	200		6	6/22+/danforth	1	1			shallow bboat capable of grounding, stake		5	
. 2 -	3000			9	9/22+/danforth with chain	2	1					7	
. 3 -	0	300		2	2/15+/danforth				vessel	stakes		3	
. 4 -	1500			150	15/15+/anchors	6	2			very shallow/groundable bboats, 3 stakes		23	
. 5 -	13000			14	14/15+/anchors	6	2			very shallow/groundable bboats, 30 stakes		23	
2-571 Petaluma River Marshes													
. 1 -	2300	2800		35	14/22+ and 21/15+/danforths w	2	0	1	skimmer	40 stakes and 1000' of line		13	
. 2 -	2500	500		12	12/12+/anchors with chain	2	1	1	self-	shallow draft bboats		7	
. 3 -	0												
2-572 Tolay Creek Marshes													
. 1 -	0	750		6	6/22+/danforth	0	1			stakes to aid in securing		2	
. 2 -	200			3	3/22/anchors	1	0			shallow draft boomboat		3	
. 3 -	10500			65	65/15+/anchors	5	2			shallow draft bboats which can strand		20	

GRA/GRP-5 Response Resources by Site and Sub-Strategy (continued)

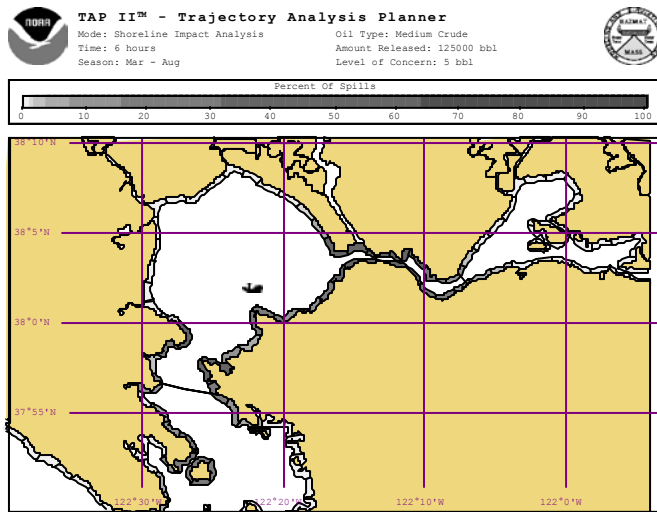
Site Site Name

sub-strategy PREVENTION OBJECTIVE OR CONDITION FOR DEPLOYMENT

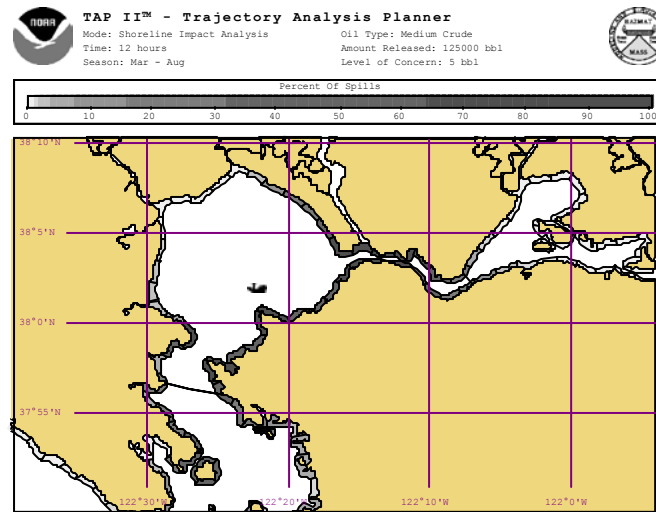
Harbor Boom	Swamp boom	Other boom/TYPE	Sorbant boom	Anchoring No	type of gear	Boom boat	Skiff	Skimmer No	Type	Special Equipment No	Equipment and kinds	(and notes)	deploy staff	Staff to tend
2-581 Sonoma Creek / Napa Slough														
. 1 -	2000		400	10	8-10, 25lb. Danforths			1	self-				8	
2-582 N.E. San Pablo Bay														
. 1 -	7300	0	0	25	22 to 25, 25 lb. Danforths	2	2	2	self		sandbags, 5 rolls plastic, baled hay		11	
2-583 Napa River Marshes														
. 1 -	6000			15	12-15, 25 lb. Danforth	2	2						11	
. 2 -	5000	0	0	12	22+danforths	4	2	0		0				

PROBABILITY OF OIL REACHING EACH SENSITIVE SITE IN GRP 5

GRP 5



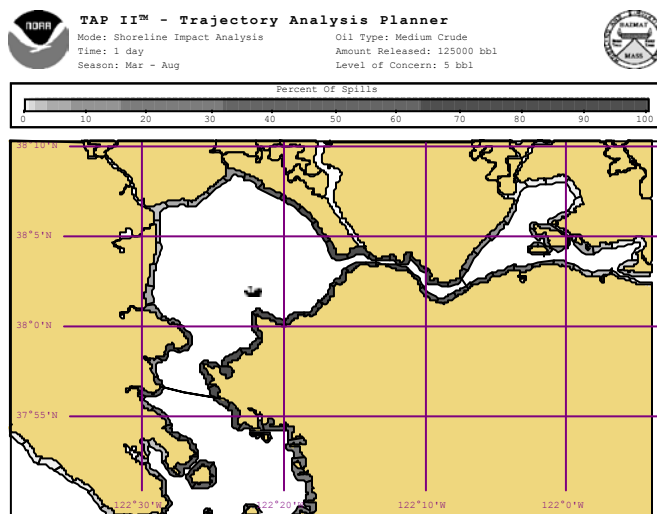
6 hours from start of spill



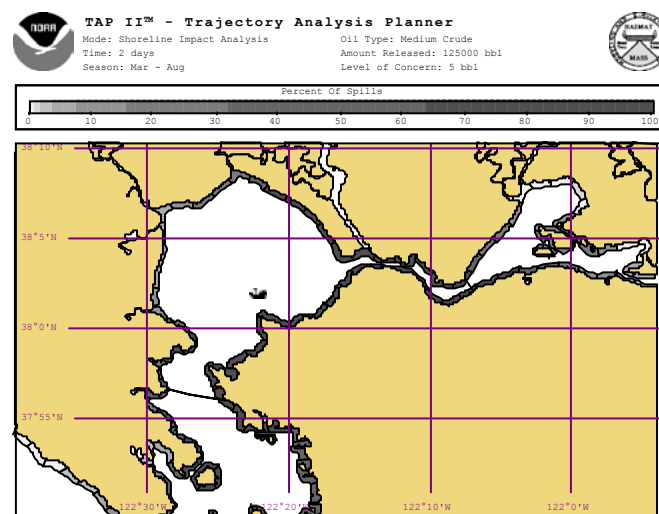
12 hours from start of spill

TAP II Maps for GRP5 Scenario: Spill of 125,000 bbls of crude at Pinole Shoal, San Pablo Bay in the Spring. The shades of grey at each impacted site correspond to a percentage in the legend of the number of spill scenarios (from 500 runs of various wind, tides and currents) that brought more than 5 bbls (= Level Of Concern) of oil to that site in the specified time frame (6 hours or 12 hours).

GRP 5



24 hours from start of spill



48 hours from start of spill

TAP II Maps for GRP5 Scenario: Spill of 125,000 bbls of crude at Pinole Shoal, San Pablo Bay in the Spring. The shades of grey at each impacted site correspond to a percentage in the legend of the number of spill scenarios (from 500 runs of various wind, tides and currents) that brought more than 5 bbls (= Level Of Concern) of oil to that site in the specified time frame (24 hours or 48 hours).

Table of Percent of Spills that bring oil (> 5 bbls) to each site from the GRP5 scenario.

ACP SITE#	ES	SITENAME	LAT W (Deg. Min.)	LONG W (Deg. Min.)	6 HOURS (% prob)	12 HOURS (% prob)	24 HOURS (% prob)
2-582	A	N.E. San Pablo Bay	38 05	122 17	50	92	99
2-583	A	Napa River Marshes	38 12	122 19	47	88	98
2-501	A	Castro Creek and Marshes	37 58	122 24	43	70	90
2-506	A	San Pablo Bay Eelgrass Bed	37 59	122 25	43	70	90
2-452	A	Richmond Eelgrass Beds	37 58	122 24	43	69	89
2-427	A	Marin Islands	37 58	122 28	42	70	95
2-551	A	McNear's Beach Marshes	38 00	122 27	42	70	95
2-552	A	China Camp Marsh	38 00	122 28	42	70	95
2-651	A	Southampton Bay	38 04	122 11	38	76	94
2-451	A	Castro Rocks	37 50	122 24	30	48	80
2-652	A	Benicia Marsh	38 02.7	122 09.7	28	53	86
2-504	A	Pinole Pt. Marshes - North	38 05	122 21	27	76	90
2-503	A	Pinole Pt. Marshes-South	37 59	122 21.6	25	72	89
2-421	C	Tiburon Peninsula	37 54	122 27	21	37	64
2-422	B	Keil Cove	37 55	122 27	21	37	64
2-424	B	Paradise Cove	37 54	122 27	21	37	6
2-423	C	Angel Island	37 54	122 27	21	32	59
2-601	A	Martinez Marsh	38 02	122 08	16	29	63
2-654	A	Goodyear Marsh	38 04	122 07	16	29	61
2-502	A	San Pablo Creek Marshes	37 58.5	122 23	15	39	72
2-420	A	Richardson Bay Marshes	36 56	122 30	13	23	39
2-603	A	Bulls Head Marsh and Pacheco Creek	38 03	122 07	11	23	61
2-505	A	Pinole Creek and Wetlands	38 01	122 18	10	39	74
2-425	A	Corte Madera Marshes	38 56	122 30	9	22	36
2-455	C	Santa Fe Channel	37 55	122 22	8	23	53
2-630	A	Suisun Shoal	38 03.5	122 06	5	14	50
2-151	C	Pt. Diablo to Lime Pt.	37 49	122 30	5	8	23

2-453	A	Brook's Island	37 54	122 21.5	2	20	48
2-426	A	San Rafael Creek Marsh	37 58	122 29	2	6	14
2-605	A	Hastings Slough, Point Edith and Seal Is.	38 03	122 03	2	3	34
2-454	A	Richmond Inner Harbor/Hoffman Marsh	37 54.5	122 20		11	40
2-553	A	Gallinas Creek Marshes	38 01	122 30		3	8
2-150	C	Point Bonita and Bonita Cove	37 49	122 31		2	3
2-458	A	Emeryville Lagoon/Mudflats	37 50	122 29		8	28
2-402	B	Alcatraz Island	37 50	122 25		8	24
2-456	A	Albany Marsh	37 54	122 19		6	30
2-457	A	Berkeley Eelgrass Beds	37 51	122 19		6	30
2-401	B	Pier 39	37 48	122 22		5	10
2-153	A	Land's End	37 47	122 30		2	9
2-154	A	Cliff House and Seal Rocks	37 47	122 31		2	9
2-400	C	San Francisco Waterfront	37 46	122 23		2	5
2-581	A	Sonoma Creek / Napa Slough	38 09	122 24		1	11
2-572	A	Tolay Creek Marshes	38 07	122 02.7		1	4
2-573	B	Midshipman Point	38 07	122 37		1	4
2-155	A	Ocean Beach/Fort Funston	37 45	122 30		1	2
2-571	A	Petaluma River Marshes	38 06	122 29			3
2-554	A	Novato Creek Marshes	38 06	122 29			2
2-351	A	Yerba Buena Island	37 48	122 22			13
2-607	A	Belloma Slough	38 03	122 01			11
2-302	C	Alameda Eelgrass Beds	37 45	122 16			9
2-633	A	Middle Ground Island	38 03.7	121 59			6
2-667	A	Freeman & Snag Islands	38 08.8	121 59.5			6
2-303	A	San Leandro Bay	37 45	122 13			5
2-608	A	Shore Acres Marsh	38 08	121 58.8			4
2-304	C	Bay Farm Island Eelgrass Beds	37 44	122 15.5			3
2-668	A	Dutton Island	38 08.8	121 59.5			3
2-148	A	Rodeo Lagoon	37 50	122 32			2

2-149	A	Bird Island	37 49	122 32			2
2-660	A	Grizzly Bay	38 08	122 02			2
2-665	A	Simmons Island	38 05.4	122 00			2
2-655	A	Joice Island/Suisun & Montezuma Sloughs	38 08	122 04			1
2-670	A	Honker Bay	38 04	121 56.3			1
2-673	A	Honker Bay East - Chipps Island Shore	38 04	121 56.3			1

RESPONSE PRIORITIES FOR GRP 5*

TIDE AND WIND AT TIME OF INSTANTANEOUS DISCHARGE	TIME PERIOD OILED (HOURS)	PRIORITY	SITE ID	SITE DESCRIPTION
0000 hrs 10 January 1998		1		Spill Site Containment
12000 Barrels		2		On -Water Recovery
Prudhoe Bay Crude	4 hrs	3	551	McNear's Beach Marshes
Point San Pablo	6 hrs	4	552	China Camp Marsh
Channel Marker 7	6 hrs	5	553	Gallinas Creek Marshes
122 22.64' W	12 hrs	6	572	Tolay Creek
38 1.82' N	12 hrs	7	573	Midshipman Pt
2 hours after slack before ebb	16 hrs	8	582	NE San Pablo Bay
wind 10 - 20 kts from South	16 hrs	9	581	Sonoma Cr / Napa Slough
First 24 hours only	18 hrs	10	554	Novato Creek Marshes
	18 hrs	11	571	Petaluma River Marshes
		12		
		13		
		14		
		15		
		16		
		17		
		18		
		19		
		20		
		21		
		22		
		23		
		24		
		25		
		26		
		27		
		28		
		29		
		30		

* Based on a 1998 BlueWater trajectory using the Oil Map Trajectory Model

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Castro Creek and Marshes - Site Summary

2-501 - A

County: Contra Costa
USGS: 7.5" Quad: San Quentin

GRP: **Latitude** 37 58 N **Longitude** 122 24 W
OSPR Map: **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

The site includes Castro Creek and the surrounding marshes from the Richmond Parkway and extends bayward (westerly) including Castro Cove from the tip of the channel jetty to the Richmond Rod and Gun Club to the point on the opposite shore and the partially diked basin on the north. The creek, shallow embayment and the partially diked pond on the north have extensive marshes, eelgrass beds, mudflats. Castro Creek, which joins this bay on its southeast side, has well developed marshes along its length for several miles and its flood plain and the easterly margin of the cove is pickleweed marsh. The site is heavily used by marsh birds, wading birds and diving ducks for foraging and resting. The easterly end is very shallow.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes are an A-priority all year.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

This area has very prime and sensitive habitats. Tidal marshes are habitat for the marsh life including some endangered species; there are both cordgrass emergent marshes and higher pickleweed marshes on the easterly portions of the site. The shallow mud flats have a rich fauna and are important feeding areas to migratory waterfowl, resident wading birds, waterbirds and fish life. The relatively protected waters here make the bay a favored resting area for migratory birds and gulls.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

There is heavy bird use of this area. The marshes are habitat for the endangered California clapper rail and other marsh birds. During the winter and spring, migratory birds rest and feed on the cove and tidal flats. The diked pond is a favorite place for ducks and for gulls which forage at the nearby dump. The endangered salt marsh harvest mouse also inhabits the high pickleweed marshes.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific info on historic or cultural resources in this area

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Dispatch EBRP	East Bay Regional Park District	(510) 792-0222	
	Pete Duda	Chevron		
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Jean Takakawa	S F Bay National Wildlife Refuge		

2-501 - A Castro Creek and Marshes - Site Strategy

Count Contra Costa

NOAA CHART: 18649 Entrance to SF Bay

Latitude 37 58 N Longitude 122 24 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

The site includes Castro Creek and the surrounding marshes from the Richmond Parkway and extends bayward (westerly) including Castro Cove from the tip of the channel jetty to the Richmond Rod and Gun Club to the point on the opposite shore and the partially diked pond on the north shore.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, water table limitations, collateral impacts)

The concern is the vulnerability of the marshes, eelgrass beds, mudflats, diked ponds and the birds and animals which are concentrated here. The south and east sides of Castro Cove and Castro Creek have extensive marshes. This makes it very important that oil be excluded from the cove. If necessary, deploy boom to drive oil to the shore: the southwest riprap shore has the best cleanup and recovery possibilities

SITE STRATEGIES

Strategy 2-501.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-18 1998-04-23 2000-01-01

Objective or Prevention Condition

Exclusion booming of mouth of Castro Cove, adjacent partially diked pond, and mouth of Castro Creek

Technique Details

This large area requires multiple exclusion deployments.

- Close the mouth of Castro Cove with 3800' harbor boom from the jetty on the south to the dike on the north. If needed, a second layer (3800') of swamp boom set a few yards behind the harbor boom will capture oil cresting the first boom as a result of wind chop. This deployment may need to be angled to direct oil toward a shoreline collection (preferably to the south). Report back to IC on need for land collection at the jetty or open water skimmer between boom layers.
- Close the openings the partially diked pond with chevron deployments at west and south openings (2 openings - 200' harbor boom).

Strategy 2-501.2

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-18 1998-04-23 2000-01-01

Objective or Prevention Condition

Exclusion booming of entries to nearby harbors and channels

Technique Details

- Deploy 1600' of swamp boom across the mouth of the Chevron Rod & Gun Club channel to the west at a diagonal to the jetty and down the jetty to tie into the exclusion boom. b) Deploy 200' of exclusion boom across the mouth of the marina. Very shallow, strandable boom boat with protected props will be necessary.

Strategy 2-501.3

Objective or Prevention Condition

Exclusion booming mouth of Castro Creek at back of Castro Cove

Technique Details

Close the mouth of Castro Creek with 2000' swamp boom. This requires a boom boat which can tolerate stranding and should be undertaken with care at higher tides.

Table of Response Resources

sub-strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-501.1	4200	3800		12 12+/22+/Danforth + 20' chain		4	0	1 open		16	2 tenders +	5
2-501.2	0	1800		6 4/12+/danforth + chain		1	1		very shallow strandable Bboat	4	above	5
2-501.1	0	2000		4 4/12+/Danforth + 20' chain		1	1	1 open	Stakes, very shallow strandable Bboat	4	2 tenders +	5

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

There is a poor land access from the Chevron Rod and Gun Club which requires pre-arrangements with Chevron. ""By boat, proceed north from the San Rafael Bridge and past Pt San Pablo, continue east in the channel past the Brothers Marina toward the Chevron

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
very limited (foot), except good on SW side.

WATER LOGISTICS:

Access limitations: depth, obstructions: very shallow and with obstructions.
Boat Launching, Loading, Docking and Services Available: Boat launch at Brothers Marina, Richmond Harbor, possibly at Chevron. Gas at Brother & Richmond. Full services at Richmond.

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Boom may be staged locally at Richmond Rod & Gun and at Brothers Marina. Both may provide field posts and Brothers has food and water. Full services and ample staging are available in Richmond inner harbor. Boom resupply at Brothers or Richmond.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

The map displays the coastline of Castro Creek and Marhes. Key features include:

- Castro Creek**: The main water body at the top.
- Beings**: A small inlet or area near the top left.
- Duck blind**: Located near the center-left.
- Mkrs Fogl**: Marker locations near the bottom left.
- Point Orient**: Labeled near the bottom right.
- Deployment Lines**:
 - 2-501.1(b)**: A red dotted line along the shore.
 - 2-501.1(c)**: A green dashed line extending from the shore into the creek.
 - 2-501.3**: A green dashed line further out in the water.
- Legend**:
 - ANCHOR**: Represented by a cross symbol.
 - MOBILE SKIMMER (SPS OR TSA)**: Represented by a yellow triangle.
 - PATH OF OIL**: Represented by a thick black line.
 - STATIONARY SKIMMER (SSS or SFS)**: Represented by a blue circle.
 - HBOOM**: Represented by a red circle.
 - SWPM**: Represented by a green circle.
 - SORBENT**: Represented by a blue line.
 - OTHER BOOM**: Represented by a grey line.
- Scale**: A scale bar indicating distances from 700 to 2100 feet.
- Date**: 11/JAN/02.
- Site Name**: CASTRO CREEK & MARHES.
- Project Number**: 2-501-A.
- Agency**: CALIF. DEPT. OF FISH AND GAME (OSPR) & USCG.

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San Pablo Creek Marshes - Site Summary

2-502 - A

County: Contra Costa
USGS: 7.5" Quad Richmond, San Quentin

GRP: 5
OSPR Map: 150
Latitude 037 58.5 N **Longitude** 122 23.0 W
Last ACP Update 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

The site is bounded on the south by the West Contra Costa Sanitary Landfill and on the north by a skeet range. Salt marshes front most of the two miles of shoreline from .3 mi. south of the San Pablo Creek mouth to .5 mi. south of Pinole point. The marsh is up to .4 mi. wide and vulnerable to oiling along the entire length of the shoreline as there are no levees. There are also extensive intertidal mudflats to the north and west of the marsh.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

Birds are especially abundant during the fall and winter.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

This area has very prime and sensitive habitats. Tidal marshes are habitat for the marsh life including some endangered species; there are both cordgrass emergent marshes and higher pickleweed marshes on the southerly portions of the site. The shallow mud flats have a rich fauna and are important feeding areas to migratory waterfowl, resident wading birds, waterbirds and fish life. The relatively protected waters here make the bay a favored resting area for migratory birds and gulls.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

There is heavy bird use of this area. The marshes are habitat for the endangered California clapper rail and other marsh birds. During the winter and spring, migratory birds rest and feed on the cove and tidal flats.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Joy Albertson	San Francisco Bay National Wildlife Refuge	(510) 792-0222	
	Dispatch EBRP	East Bay Regional Park District	(510) 792-0222	
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Dr. Naill McCarten	Botanical Research	(510) 841-8145	

2-502 - A San Pablo Creek Marshes - Site Strategy

Count Contra Costa

NOAA CHART: San Francisco Bay - Angel Is to PSP

Latitude Longitude
037 58.5 N 122 23.0 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

The site is bounded on the south by the West Contra Costa Sanitary Landfill and on the north by a skeet range.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Very shallow water. Submerged obstructions likely.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Multiple tidal channels present a high risk of oil penetrating deeply into the marsh.

SITE STRATEGIES

Strategy 2-502.1

(USCG Strategic Objective: 6) Dates: SISRS Approved last tested ACP date
1999-03-29 2000-01-01

Objective or Prevention Condition

Exclusion booming of mouths of inlets to prevent oil from entering creek and marshes.

Technique Details

Deploy at least one layer of harbor boom in the mouth of each inlet to the marsh. Place the boom at a 45 degree angle to the centerline of the inlet. Back the harbor boom with swamp boom or sorbent boom. Deploy harbor boom in an inverted "V" off the larger inlets, those wider than 10 feet. Use a length of boom at least three times the width of the inlet. Anchor the ends of the boom at the edge of the marsh vegetation at least one inlet width either side of the inlet mouth. Anchor the center of the boom off the inlet mouth.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-502.1	2000	2000		80 80		4	4		16	yes	6

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Access by shallow draft vessel only. Launch ramp at Chevron Refinery. Hoist available at Pt San Pablo Yacht harbor.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
None

WATER LOGISTICS:

Access limitations: depth, obstructions: Shallow water with numerous obstructions.

Boat Launching, Loading, Docking and Services Available: Boat services available at Pt. San Pablo Yacht harbor, Richmond Marina. Chevron Rod and Gun Club. Otherwise, use Richmond Marina. Shallow launches are available at Richmond Rod and Gun Club and at the abandoned sea plane ramp.

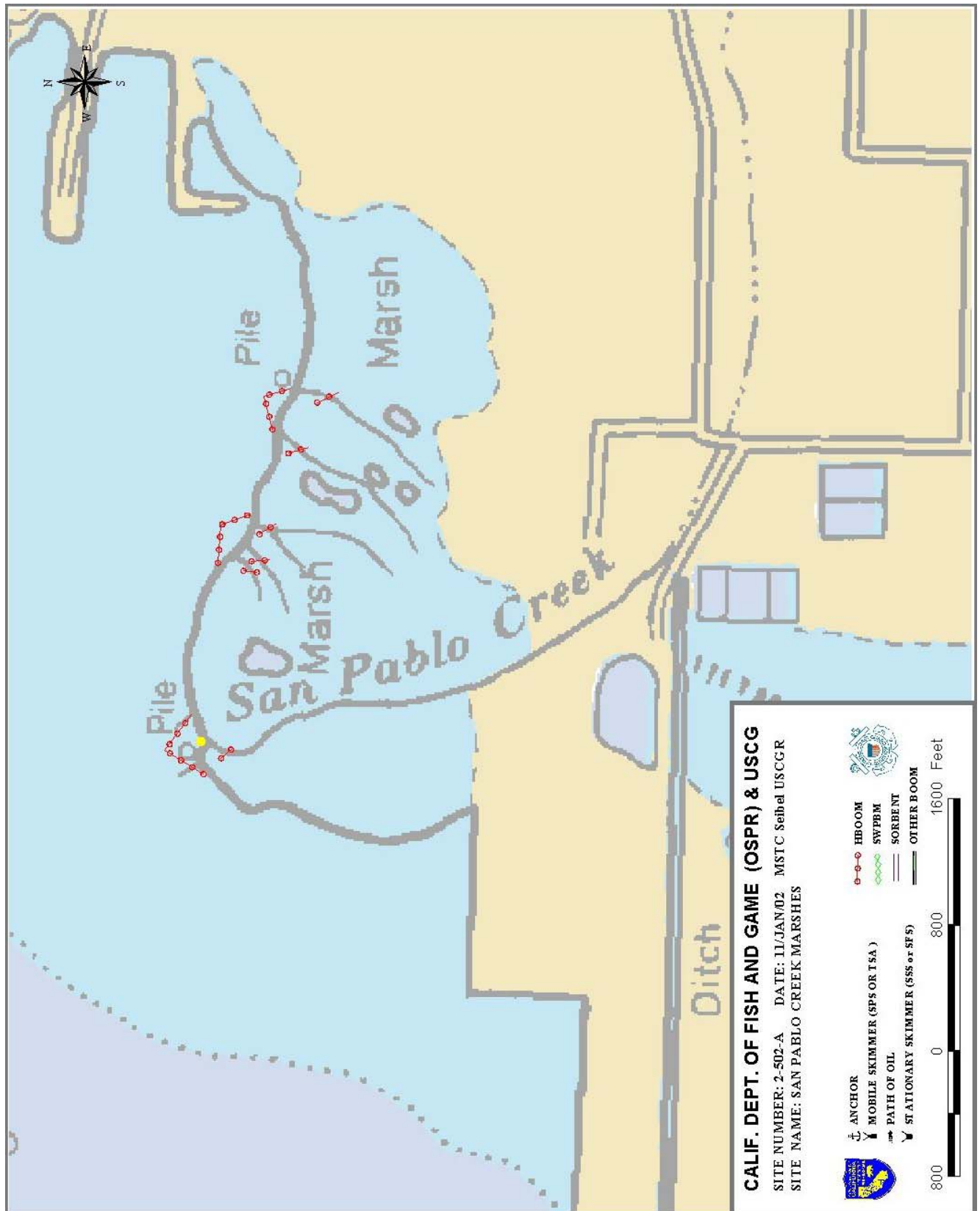
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

The Chevron Refinery offers the nearest quality facilities. The Pt. San Pablo Yacht Harbor may be suitable for staging or a field post. Also consider the Richmond Rod and Gun Club.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-502 – A San Pablo Creek Marshes - Site Strategy Diagram



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Pinole Pt. Marshes-South - Site Summary

2-503 - A

County: Contra Costa
USGS: 7.5" Quad: Mare Island

GRP: **Latitude** 037 59 N **Longitude** 122 21.6 W
OSPR Map: 151 **Last ACP Update** 1997-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Approximately 50 acres of salt marshes run intermittently from one mile south of Pinole Pt. On the north to a filled area approximately 2 miles south of Pinole Pt. Pinole Point marshes are part of East Bay Regional Parks.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

This is an A priority all year.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Species which may occur in the marshes include: the salt marsh harvest mouse, *Reithrodontomys raviventris*, and California black rail, *Laterallus jamaicensis coturniculus*.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

There are historic sites on the uplands. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison - (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322	
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866	
	Dr. Naill McCarten	Botanical Research	(510) 841-8145	
	Byran Mortensen	East Bay Region Park	(510) 223-7840	
	Dave Yoas	East Bay Regional Park	(510) 223-7840	

2-503 - A Pinole Pt. Marshes-South - Site Strategy

Count Contra Costa

NOAA CHART: San Pablo Bay 18654

Latitude Longitude
037 59 N 122 21.6 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Very rare and endangered species occur in this marsh. The intent is to keep oil from entering the marsh by excluding entry to tidal channels and, when tides are very high and will wholesale flood the marsh, by protection booming all along the frontage. Minimize trampling of marsh, small endangered species may be underfoot. Set booms to avoid short-circuiting around boom ends especially near shore anchoring.

SITE STRATEGIES

Strategy 2-503.1

(USCG Strategic Objective: **567**) Dates: **SISRS** Approved last tested ACP date
1997-07-01

Objective or Prevention Condition

Exclusion booming to prevent oil from entering the marsh.

Technique Details

Exclude oil from the channels leading into Parchester Marsh. Place swamp boom backed by sorbent in each of the four channels draining the marsh. 400' of swamp boom and 400' of sorbent should be adequate. The type of sorbent should be adjusted to the type of oil spilled. Use plastic pompoms for heavy oils and rubberizer boom for light oils.

Strategy 2-503.2

(USCG Strategic Objective: **567**) Dates: **SISRS** Approved last tested ACP date

Objective or Prevention Condition

If high tides are anticipated, protection of the marsh front is needed.

Technique Details

Deploy 6,400 feet of harbor boom (2 layers of swamp boom held by 1 to 2 feet apart may be substituted) immediately east of the rows of piles offshore of Parchester Marsh. This boom should be backed by 2 layers, 13,000 feet, of sorbent boom or oil snare rope.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-503.1		400		4 4 30 lb Danforth anchors	400		1	1 SSS		4	2	567
2-503.2	6400			4 4 30 lb Danforth anchors	13000	1	4	1 SSS		11	2	567

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Approximately 50 acres of salt marshes run intermittently from one mile south of Pinole Pt. On the north to a filled area approximately 2 miles south of Pinole Pt.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)

Service road in park will permit land approach to near the site, and private road near gun club (locked gate) will allow access as far as old water plane ramp. But most shore access is by foot. There are frequented trails along shore in park (only).

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)

Service road in park will permit land approach to near the site on the north, and private road near gun club (locked gate) will allow access as far as old water plane ramp: probably the best place to launch boom from shore. But most shore access is by foot. There are frequented trails along shore in park (only).

WATER LOGISTICS:

Access limitations: depth, obstructions: Shallow water with numerous obstructions.

Boat Launching, Loading, Docking

and Services Available:

Boat services available at Pt. San Pablo Yacht harbor, Richmond Marina, and Chevron Rod and Gun Club. Otherwise, use Richmond Marina. There is a launch ramp at the Richmond Gun Club and at the old seaplane ramp, both of which can be used only at high tide.

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

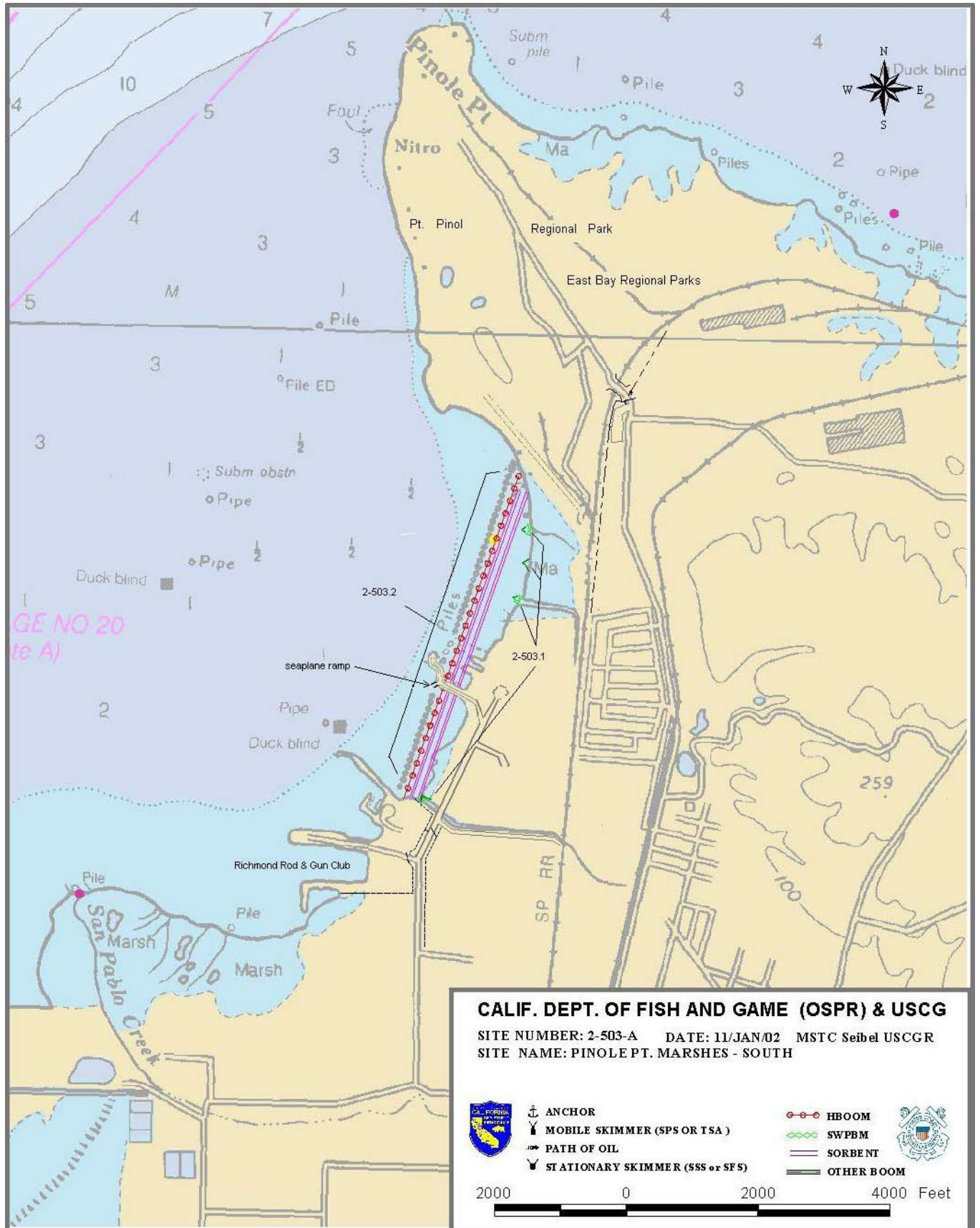
The Chevron Refinery offers the nearest quality facilities; possible use of Richmond Rod and Gun by arrangement only. The Pt. San Pablo Yacht Harbor may be suitable for staging or a field post. Otherwise use Richmond Marina.

COMMUNICATIONS LIMITATIONS / PROBLEMS:

No Problems

ADDITIONAL COMMENTS

2-503 - A Pinole Pt. Marshes-South - Site Strategy Diagram



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Pinole Pt. Marshes - North - Site Summary

2-504 - A

County: Contra Costa
USGS: 7.5" Quad:Mare Island

GRP: **Latitude** 038 05 N **Longitude** 122 21 W
OSPR Map: 145 **Last ACP Update** 1997-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

The marshes and creeks occur between Pt. Pinole and Wilson Point, covering a distance of approximately 2 miles. The shoreline is low, and the water offshore is very shallow. The bottom is fine sand and mud. There is an intermittent storm berm separating the beach from the marsh. The top of the storm berm is composed of medium to coarse sand and shell. It is very near the high tide level and broken by many tidal channels. The land behind the storm berm is below the high tide level and vegetated with a variety of high marsh plants. The Pinole Point marshes are part of East Bay Regional Parks.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

"A" priority year-round due to salt marsh and presence of special status species.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Cordgrass salt marsh, mudflat, eelgrass beds, and associated wildlife are vulnerable year-round.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable) The rare plant species soft The rare plant species, soft bird's-beak, *Cordylanthus mollis*, occurs in the area. Species which may occur in the salt marshes include the salt marsh harvest mouse, *Reithrodontomys raviventris*, and the California black rail, *Laterallus jamaicensis coturniculus*.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

There are historic sites on the uplands. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison - (916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Peter Baye	Baylands Nature Preserve	(650) 329-2506	
	Dispatch EBRP	U S Army Corps of Engineers	(415) 744-3322	
	Jan Knight	East Bay Regional Park District	(510) 792-0222	
	Thomas Lindenmeyer	US Fish and Wildlife Service	(916) 978-4866	
	Dr. Naill McCarten	East Bay Regional Park		
	Byran Mortensen	Botanical Research	(510) 841-8145	
	Dave Yoas	East Bay Region Park	(510) 223-7840	
		East Bay Regional Park		

2-504 - A Pinole Pt. Marshes - North - Site Strategy

Count Contra Costa

NOAA CHART: San Pablo Bay 18654

Latitude Longitude
038 05 N 122 21 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Extensive cleanup and site remediation would be required should oil enter Whittel Marsh or Garrity Creek. There would be long term loss of sensitive species and their habitat.

SITE STRATEGIES

Strategy 2-504.1

(USCG Strategic Objective: 567) Dates: SISRS Approved last tested ACP date 1997-07-01

Objective or Prevention Condition

Exclude oil from the inner marshes. If high tide expected, exclude from marsh front.

Technique Details

Exclude oil from the inlets leading into Whittle Marsh. The largest inlet will require 200 feet of swamp boom and 200 feet of sorbent boom. The type of sorbent should be adjusted to the type of oil spilled. Use plastic pompoms (Oil-snare-on-a-rope) for heavy oils and rubberizer boom for light oils. Set 2 layers of swamp boom at a steep angle across the creek and back with several layers of sorbent boom. If high tide expected, exclude from marsh front.

Heavy oil can be excluded from the remaining 3 inlets by placing 300 feet of oil snare rope in each channel so it forms a solid layer on the surface of the water from bank to bank for 6 feet of the channel length. The mat of the pompoms must be able to rise and fall with the tide. Lighter oils can be excluded by placing sorbent boom so as to create a similar sized barrier.

Exclude oil from Garrity Creek by placing three 100 foot sections of swamp boom at a 45 degree angle across the creek. Back with sorbents. Use 300 feet of oil snare on a rope or 100 feet of 4 high construction fence with oil snares fastened every 14 inches in 3 rows. If insufficient boom available, one inlet can be closed with 50 sand bags. There is adequate sand on the beach to fill the bags.

The natural berm separating the marshes from San Pablo Bay is topped by waves at only the highest spring tides. If such tides are expected, 5 layers of oil snare on a rope, or other sorbent appropriate to the type of oil spilled, should be placed along the top of the berm for its entire length. This will require approximately 25,000 feet of oil snare on a rope.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-504.1	2000	500		8 8-30 pound Danforth		1	1			14	14	567

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Approximately 100 acres of salt marshes run intermittently from Garrity Creek on the west to Pinole Pt. On the east along the south shore of San Pablo Bay. Access to Wittel Marsh is via shallow water craft. In dry weather some access may be possible via Pt. Pinole Road and Marsh Trail. There is parking areas on the shoreline at either side of Whittel Marsh. Access to Garrity Creek is via San Pablo Ave and Tara

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)

WATER LOGISTICS:

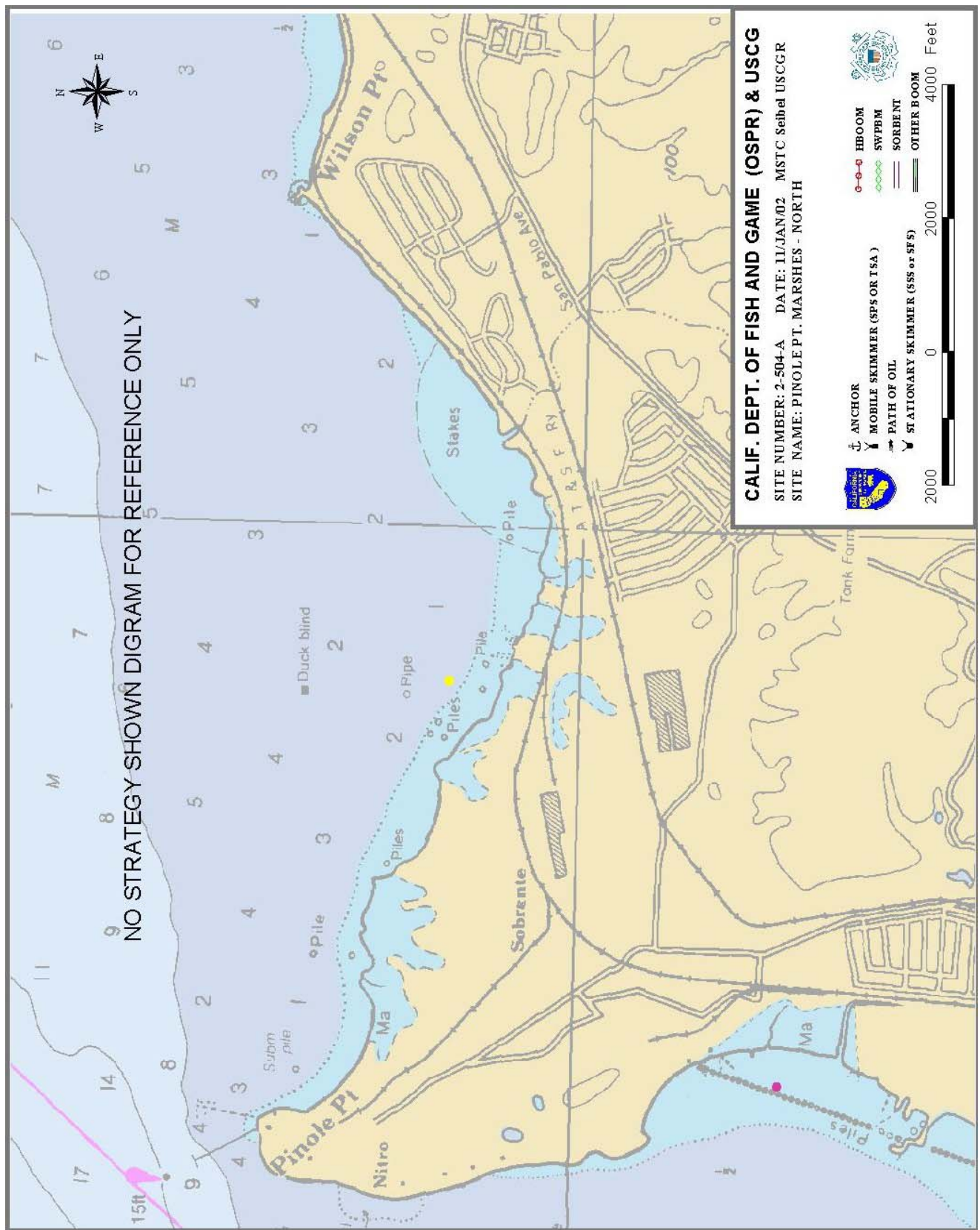
Access limitations: depth, obstructions:

Boat Launching, Loading, Docking
and Services Available:

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS



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Pinole Creek and Wetlands - Site Summary

2-505 - A

County: Contra Costa County
USGS: Mare Island

GRP: **Latitude** 38 01 N **Longitude** 122 18.0 W
OSPR Map: 145 **Last ACP Update** 1996-07-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

One-half mile in both directions along shore from Pinole Creek. Creek is a narrow channel (c.a. 25 ft.) with cordgrass marsh along its banks inland to the bridge. A sand/gravel bar extends from the east side creek mouth out into bay. Shorelines on either side of creek are mudflats backed by marshes.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

"A" priority year-round due to salt marsh and presence of special status species.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Cordgrass salt marsh, mudflat, eelgrass beds, and associated wildlife are vulnerable year-round.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

Waterfowl, shorebirds, and gulls are present throughout the area. Special status species: Birds: California black rail (FT/CT)
Clam beds are present near the shore. Fish inhabit the creek.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Dispatch EBRP	Baylands Nature Preserve	(650) 329-2506	
		East Bay Regional Park District	(510) 792-0222	

2-505 - A Pinole Creek and Wetlands - Site Strategy

Count Contra Costa County

NOAA CHART: 18654 SAN PABLO BAY

Latitude Longitude
38 01.0 N 122 18.0W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

One-half mile in both directions along shore from Pinole Creek.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Railroad tracks across creek.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into marshes or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Impacts to saltmarsh, mudflat, and eelgrass beds, and their associated wildlife.

SITE STRATEGIES

Strategy 2-505.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1996-07-01

Objective or Prevention Condition

Exclude oil from entering the creek.

Technique Details

Exclusion boom: Deploy 200 ft curtain boom (small skirt) across creek channel mouth. Deploy at angle to current from rip rap point west back to beginning of marsh bank on east side. Deploy from levee.

Strategy 2-505.2

(USCG Strategic Objective: 8) Dates: SISRS Approved last tested ACP date
1996-07-01

Objective or Prevention Condition

Protective booming to prevent oil from coming in contact with the bayfront marsh vegetation.

Technique Details

Line marsh fronts with small curtain boom backed with sorbent boom (500 ft west, 3000 ft east of creek mouth).

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-505.1	0	200		2 2-20#		1	1		4		5
2-505.2	0	3500		8 8/22/danforths & stakes	3500	2	3		13	8 yes	8

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Key access is from I-80 to City of Pinole. Exit Pinole Valley Road. Proceed north across San Pablo Ave. where Pinole Valley Rd. turns into Tennent. Proceed north to Waste Water treatment plant at shoreline. Parking and gate to levee road is here.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
2WD, LG TRUCK, HVY EQ, 4WD, AT

WATER LOGISTICS:

Access limitations: depth, obstructions: VERY SHALLOW WATER
Boat Launching, Loading, Docking Punts can be launched at Pinole Creek.
and Services Available:

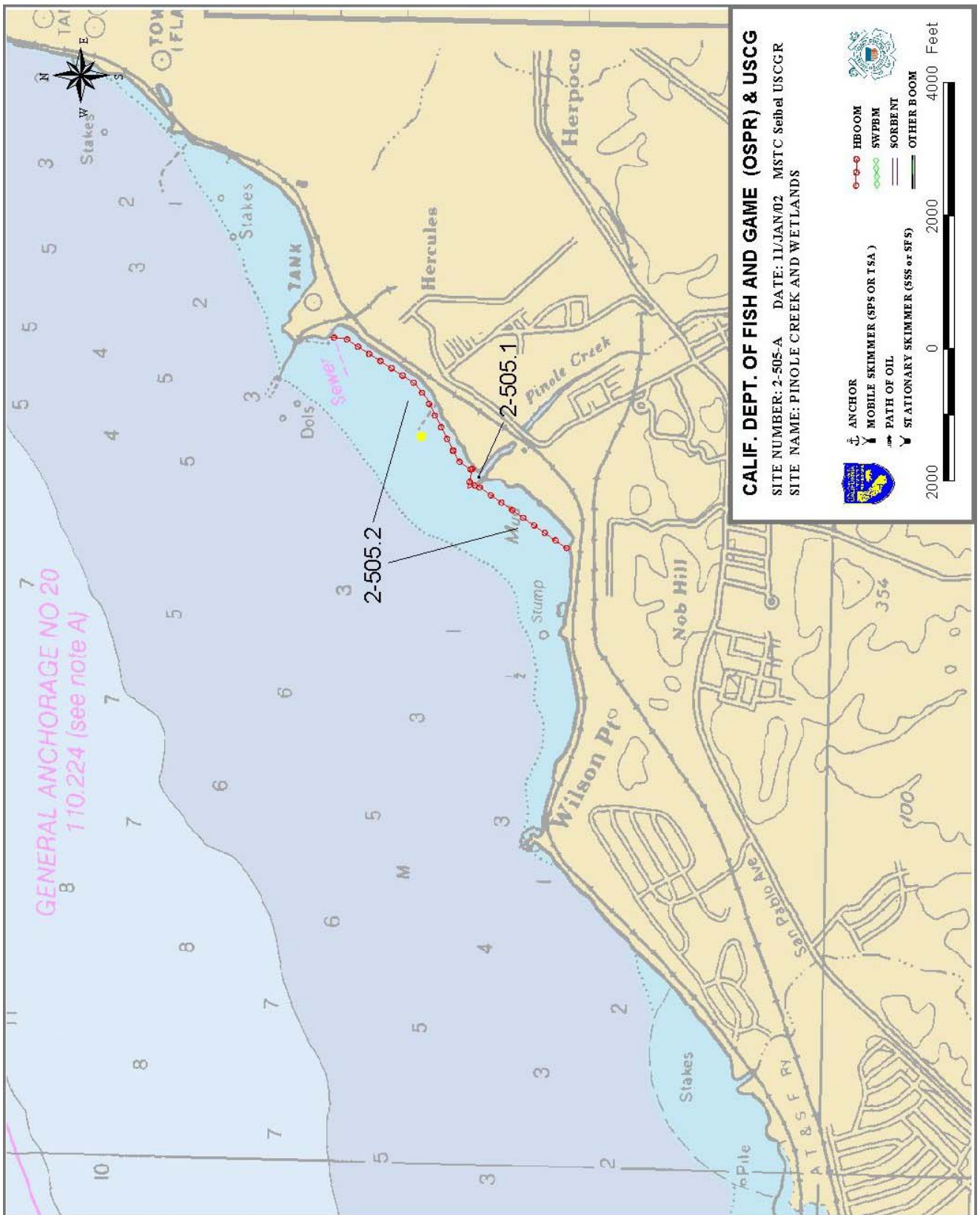
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Stage from area around waste water treatment plant.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-505 – A Pinole Creek and Wetlands - Site Strategy



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San Pablo Bay Eelgrass Bed - Site Summary

2-506 - A

County: Contra Costa
USGS: San Quentin

GRP: 5 **Latitude** 37 59 N **Longitude** 122 25 W
OSPR Map: 150 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

This large eelgrass bed is located between Point San Pablo and Point Pinole one mile northwest of the West Contra Costa Sanitary Land Fill. This is a shallow subtidal soft bottom area of the bay. The eelgrass bed occupies approximately 300 acres. It is easily visible from the air at low tide. It may be difficult to find at high tide.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

The eelgrass itself becomes vulnerable to oil at tide levels below +2 ft and its vulnerability increases as the tide drops. The eelgrass bed is densest and will therefore collect the most oil during late summer and early fall.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

Black brant (geese) depend upon the eelgrass for food during the winter.

A wide variety of fish reside and feed in the eelgrass bed.

Eelgrass.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

This is unlikely to include any cultural or historic resources.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
B	Chuck Armor	Ca Dept Fish and Game, Bay/Delta	(209) 944-7800	
	Chevron Control Room	Chevron-Operations Control Room (24hrs.)	(510) 242-4494	

2-506 - A San Pablo Bay Eelgrass Bed - Site Strategy

Count Contra Costa

NOAA CHART: Entrance to San Francisco Bay 18649

Latitude Longitude
37 59 N 1229 25W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

This large eelgrass bed is located between Point San Pablo and Point Pinole one mile northwest of the West Contra Costa Sanitary Land

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Eelgrass beds are important habitat for fish. Oil sticks very readily to eelgrass, which is unusual for most marine plants. Oil can pass directly over the eelgrass at high tide without sticking to the eelgrass. No booming is necessary if eelgrass tops will not be exposed during the tidal cycle.

SITE STRATEGIES

Strategy 2-506.1

(USCG Strategic Objective: 6) Dates: SISRS Approved last tested ACP date
1999-05-18 1997-07-01

Objective or Prevention Condition

Deflect oil from coming into contact with the eelgrass during low tides.

Technique Details

Deflection booming: if a large amount of heavy oil is expected to enter the eelgrass bed within 2 hours of low tide, 2000 feet of harbor boom should be deployed in an attempt to deflect the oil around the eelgrass. The location and manner in which the boom is deployed will depend upon the wind and current at the time of the deployment. The deflection is unlikely to be effective if any portion of the boom is perpendicular to the wind or current. Oil can pass directly over the eelgrass at high tide without sticking to the eelgrass.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff skimmer	No / type	Number and kind of special equipment	deploy staff	staff for tending	SO
2-506.1	2000			6 6		3				4	yes	6

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Access by water only. Launch ramp at Richmond Marina or Chevron Refinery.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
Boat access only

WATER LOGISTICS:

Access limitations: depth, obstructions: shallow draft vessels only
Boat Launching, Loading, Docking Richmond Marina, Pt San Pablo Yacht harbor, and Chevron Refinery
and Services Available:

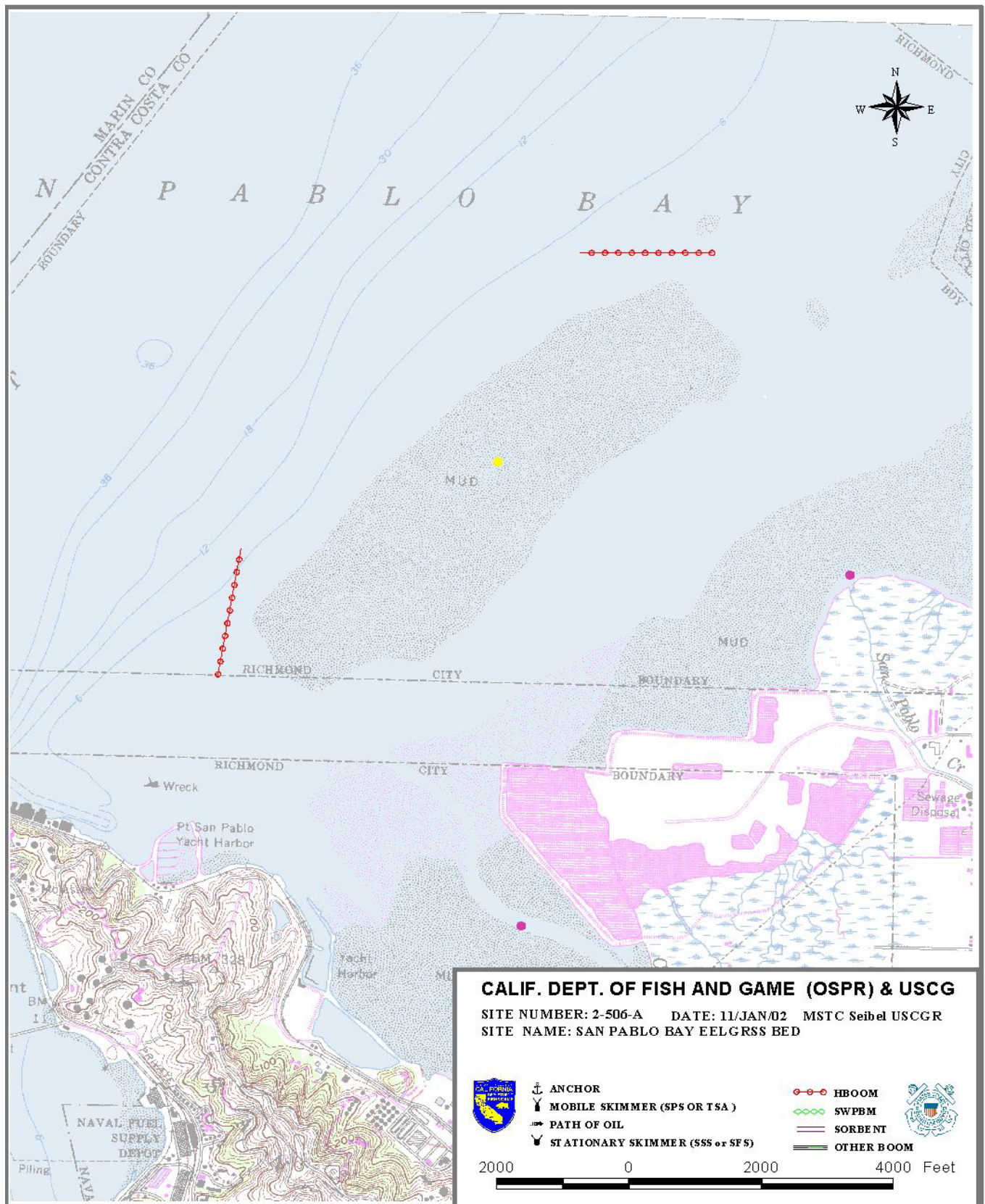
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Richmond Harbor and Chevron Refinery

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-506 – A San Pablo Bay Eelgrass Bed - Site Strategy Diagram



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China Camp Marsh - Site Summary

2-552 - A

County: Marin
USGS: San Quentin, Petaluma Pt

GRP: 5 **Latitude** 38 00 N **Longitude** 122 28 W
OSPR Map: 150, 144 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Site includes the marshes and mudflats of China Camp State Park. Approximate boundaries are Rat Rock/Five Pines Point on the east to Gallinas Creek on the west (approximately the power line tower). Nearly 3 miles of bayfront marshes, mudflats and rocky shores. The largest pickleweed marsh extends from Gallinas Creek to Buckeye Point (1.5 miles). This is a pristine marsh with extensive tidal channels.

Three narrow pocket marshes of cordgrass and pickleweed are present between Buckeye Point to Weber Point, Weber Point to Bullhead Flat, and Bullhead Flat to Five Pines Point.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes and listed species are an A priority all year. Spring and winter months are exceptionally vulnerable times for migratory species of birds.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Extensive saltmarsh and mudflats are present throughout the site. Several threatened and endangered species utilize the marsh and surrounding areas.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

The California clapper rail, black rail, and San Pablo song sparrow (all special status species), wading birds and raptors are present all year. In the spring (Mar - May) and fall (Oct - Nov) migratory shorebirds are abundant throughout the marshes and mudflats. In the winter (Sept - Mar) waterfowl are abundant over the mudflats and open bay waters.

The endangered salt marsh harvest mouse is present in the marsh all year.

A variety of surfperch, flatfish, sturgeon, striped bass, and salmon are present in the waters over the mudflats.

A variety of shrimp, worms and other invertebrates are present on the mudflats.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

There are cultural and historic resources present. Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
		China Camp State Park	(415) 456-0766	
	Region 3 Office	Ca Dept Fish & Game	(707) 944-4400	
	Barbra Salzman	Marin Audubon Society	(415) 924-6057	(415) 927-3533

2-552 - A China Camp Marsh - Site Strategy

Count Marin

NOAA CHART: 18654 San Pablo Bay

Latitude 3 8 00 N Longitude 1229 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

Site includes the marshes and mudflats of China Camp State Park. Approximate boundaries are Rat Rock/Five Pines Point on the east to Gallinas Creek on the west (approximately the power line tower).

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water and mudflats extend out into the bay from all marsh areas. Power lines are present at the west end of the site across Gallinas Creek.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

The large extensive saltmarsh with interior tidal channels is extremely vulnerable to oil. The presence of large tidal mudflats create access difficulties for protection measures thereby increasing the risk of oiling. First priority is to keep oil from being carried into inner marsh via tidal channels. Avoid trampling marsh vegetation and trampling oil into mudflat.

SITE STRATEGIES

Strategy 2-552.1

(USCG Strategic Objective: 5) Dates: SISRS 1999-05-25 Approved 1999-07-13 last tested 2000-01-01 ACP date

Objective or Prevention Condition

On-water recovery of oil to prevent oil from entering marshes, tidal channels and mudflats.

Technique Details

Conduct on-water recovery in deeper water and channels near Rat Rock and east of China Camp State Park.

Strategy 2-552.2

(USCG Strategic Objective: 5,7) Dates: SISRS 1999-05-25 Approved 1999-07-13 last tested 2000-01-01 ACP date

Objective or Prevention Condition

Deflect oil away from shoreline into main channel. Prevent oil from entering marshes and tidal channels.

Technique Details

Deploy deflection harbor boom (18-20 in.) from mainland shore near Rat Rock and at Buckeye Point (at pier pilings). Deploy in 200-500ft.sections. 500 ft. at each site.

Strategy 2-552.3

(USCG Strategic Objective: 5) Dates: SISRS 1999-05-25 Approved 1999-07-13 last tested 2000-01-01 ACP date

Objective or Prevention Condition

Exclude oil from entering marshes and tidal channels from Gallinas Creek to Rat Rock.

Technique Details

Exclusion booming of inlets in largest (west) marsh if limited by equipment/time. At least six major tidal channels are present in the largest marsh. Deploy a combination of "V" shape swamp booms across channel openings (50 ft. each) and utilize contractor type fence booms with sorbents and/or oil snares in the channels. Deploy remaining boom segments along marsh fronts - 1000 ft; 1000 ft; and 400ft from Buckeye Point to Rat Rock.

Strategy 2-552.4

(USCG Strategic Objective: 8) Dates: SISRS 1999-05-25 Approved last tested ACP date

Objective or Prevention Condition

Protective booming of marsh fronts from Gallinas Creek to Rat Rock

Technique Details

Deploy curtain boom (8 in. swamp) along marsh fronts to exclude oil. Deploy at high tide over mudflats as close to marsh front as possible. From west to east, the marshes at this site require 8000 ft.; 1000 ft.; 1000 ft.; and 400 ft. of exclusion boom.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-552.1	0					2	0	2 self-	9	0	5
2-552.2	1000			8 6-8, 25 lb. Danforth		3	0	0	13	4 every tidal	5,7
2-552.3	0	2700		12 15+lb. Danforth		2	1	0	10	6 6 daily	5
2-552.4	0	10400	0	65 15+ lb. Danforth		5	2	0 0 shallow draft boats	23	4 every tidal	8

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

From Hwy 101 in San Rafael, Marin County; take the San Pedro Road exit. Proceed east on San Pedro Road to China Camp State Park.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
large truck okay

WATER LOGISTICS:

Access limitations: depth, obstructions: Very shallow water (<3 ft.)
Boat Launching, Loading, Docking and Services Available: Small boat launch at Buck's Landing. Water access also near Rat Rock (Bullshead flat).

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Small restaurant/store at Buck's Landing. Staging at Buck's Landing, Bullhead Flat and McNear's Beach.
No spill response equipment stored locally.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

CALIF. DEPT. OF FISH AND GAME (OSPR) & USCG

SITE NUMBER: 2-552-A DATE: 11/JAN/02 MSTC Seibel USCGR
 SITE NAME: CHINA CAMP MARSH

Legend:

- ANCHOR
- MOBILE SKIMMER (SPS OR TSA)
- PATH OF OIL
- STATIONARY SKIMMER (SSS OR SFS)
- HBOOM
- SWPBM
- SORBENT
- OTHER BOOM

Scale: 1000 0 1000 2000 3000 Feet

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Gallinas Creek Marshes - Site Summary

2-553 - A

County: Marin
USGS: San Quentin, Petaluma Pt

GRP: 5 **Latitude** 38 01 N **Longitude** 122 30 W
OSPR Map: 144 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Site contains Gallinas Creek marshes and the bayfront marshes from the creek north to old Hamilton Field. Boundaries include the south shore of Gallinas Creek as the south boundary, to the levee and tower at the south end of Hamilton air field as the north boundary. Extensive cordgrass and pickleweed saltmarsh are present on both sides of Gallinas Creek and on the San Pablo Bay marshfront from the creek to Hamilton Field. Mudflats extend out into San Pablo Bay from the marshes. At least seven major interior tidal channels in the marsh open to San Pablo Bay.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes and animals that live in and around them are an "A" priority all year.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

These wetlands are home to several threatened and endangered species including: black rail, San Pablo song sparrow, burrowing owls, the saltmarsh harvest mouse, and the Pt. Reyes bird's beak (a plant). These marshes are a major north bay habitat for the endangered California clapper rail. The adjacent mudflats are heavily used by overwintering shorebirds, wading birds, and waterfowl as well as during spring and fall migration.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

The clapper rail, black rail, San Pablo song sparrow, burrowing owls and wading birds are present all year. In the spring (Mar - May) and fall (Oct - Nov) thousands of migratory shorebirds are present throughout the marshes and mudflats. In the winter (Sept - Mar) waterfowl are abundant over the mudflat and open bay waters.

The saltmarsh harvest mouse (endangered) is present in the marsh all year.

A variety of surfperch, flatfish, sturgeon, striped bass and salmon are present in the waters over the mudflats.

A variety of shrimp, worms and other invertebrates are present on the mudflats.

The Point Reyes bird's beak (a Species of Special Concern) is an annual plant present in the upper marsh elevations during the spring and summer months.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Chief Ranger	CA Dept of Parks and Recreation	(707) 937-5804	
	Barbra Salzman	Marin County Parks and Open Space	(415) 499-6405	
	Bob Stewart	Marin Audubon Society	(415) 924-6057	(415) 927-3533
			(415) 498-6405	

2-553 - A Gallinas Creek Marshes - Site Strategy

Count Marin

NOAA CHART: 18654 San Pablo Bay

Latitude 38 01 N Longitude 122 29 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

Site contains Gallinas Creek marshes and the bayfront marshes from the creek north to old Hamilton Field. Boundaries include the south shore of Gallinas Creek as the south boundary, to the levee and tower at the south end of Hamilton air field as the north boundary.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water and mudflats are extensive. Power lines over creek and parallel to mudflat will be a hazard to low flying aircraft.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

The large extensive saltmarsh with interior tidal channels is extremely vulnerable to oil. The presence of large tidal mudflats create access difficulties for protection measures thereby increasing the risk of oiling. First priority is to keep oil from being carried into inner marsh via tidal channels. Avoid trampling marsh vegetation and trampling oil into mudflat.

SITE STRATEGIES

Strategy 2-553.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Deflect/collect oil to prevent from entering Gallinas Creek and interior marsh channels along bayfront.

Technique Details

Charts do not properly reflect the mouth of the Gallinas Creek. The creek is drained through the main channel and smaller channels serve the salt marshes.

Deploy 1000 ft. of deflection curtain boom (harbor or swamp) across Gallinas Creek to boat ramp. Anchor boom on north shore in the high marsh near the power line tower. May need tidal barrier boom across mudflat and marsh to provide adequate seal.

Deploy 500 ft. of swamp boom on south shore from boat ramp, extending towards the bay, in front of dock, across mudflat and marsh towards power line tower.

Deflect to collection pocket at boat ramp. Skim oil at boat ramp.

Strategy 2-553.2

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Exclude oil from entering marsh channels and/or marshfront north of Gallinas Creek.

Technique Details

At least seven major interior tidal channels exist in the marsh north of Gallinas Creek. Use exclusion booming techniques to prevent oil entry. Deploy a combination of "V" shaped swamp booms across each channel opening (50 ft. each) and utilize contractor type fence booms with sorbent booms and oil snare in the channel.

Strategy 2-553.3

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Deflection/collect oil to prevent oil from entering Gallinas Creek.

Technique Details

This is a fall-back strategy to strategy 2-553.1. 1) Further inside Gallinas Creek, deploy 1000 ft. of curtain boom (harbor or swamp) across the channel from the north side levee to the south shore.

2) Deflect oil to an in-channel floating skimmer; or, to a suitable shoreside collection area near the homes: skimmer and storage.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-553.1	1500			6 6x25 lb. Danforths		1	0	1 SSS	stakes to anchor boom in marsh	7	3 with tidal	5
2-553.2	0	350		stakes	400	1	0	0	stakes, contractor fence, oil snare	7	2-3 daily	5
2-553.3	1000			6 6x 20 lb.				1 SSS	Storage cap. Necessary	7	3 with tidal	5

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

From Hwy 101 in San Rafael, Marin County, take the San Pedro Road exit east towards China Camp State Park. Turn left at road to Buck's Landing and launch ramp for access to Gallinas Creek. There is no road access to the shore north of Gallinas Creek.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
Large truck okay on south side, no land access on north side

WATER LOGISTICS:

Access limitations: depth, obstructions: shallow draft vessels only
Boat Launching, Loading, Docking Small boat launch at Buck's Landing. Additional water access at China Camp, Bullhead Flat.
and Services Available: and at McNear's Beach.

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Staging and small restaurant/store at Buck's Landing.
No spill response equipment stored locally.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

CALIF. DEPT. OF FISH AND GAME (OSPR) & USCG

SITE NUMBER: 2-553-A DATE: 11/JAN/02 MSTC Seibel USCGR

SITE NAME: GALLINAS CREEK MARSHES

Legend:

- ANCHOR
- MOBILE SKIMMER (SPS OR TSA)
- PATH OF OIL
- STATIONARY SKIMMER (SSS OR SFS)
- HBOOM
- SWPBM
- SORBENT
- OTHER BOOM

Scale: 1000 0 1000 2000 3000 Feet

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Novato Creek Marshes - Site Summary

2-554 - A

County: Marin
USGS: Petaluma Point

GRP: **Latitude** 38 06 N **Longitude** 122 29 W
OSPR Map: 144 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Site includes the San Pablo Bay frontage from mouth of Petaluma River (high power wires) extending 2.3 miles southerly to the levee at Hamilton Air Base and includes a mile of Novato Creek to the Bel Mar Keys locks and adjacent marshes. The bay frontage marshes between Petaluma River and Hamilton Air Base are prograding and shallow very gradually, supporting 100 to 200 meter wide variety of biota from tidal flat to high marsh: unvegetated to cordgrass to pickleweed dominated. Novato Creek is an incised channel through a wide flood plain of pickleweed marsh. In addition, there is much larger high pickleweed marsh both north and south of Novato Creek; the Northerly side is a tidal tributary to Novato Creek, while the marshes to the South are predominantly tributary directly to San Pablo Bay with several mosquito abatement outlets. The high marsh is inundated only very occasionally with extreme high tides of winter and mid summer.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

This is an A-priority site all year due to the extensive marshes. Several Special Status Species occur here including one endangered and one threatened species. These marshes and the adjacent tidal flats are heavily used by migratory shorebirds and waterfowl from September through April.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

This site has both prograding marsh fronting the bay and extensive high pickleweed marsh. The bay frontage is wide continuum of biota from tidal flat to high marsh: unvegetated to chord grass to pickleweed dominated. The extensive high pickleweed marshes to the north and south of Novato Creek have tidal channels. Those to the north have numerous channels to Novato Creek. Those south of Novato Creek drain primarily through three mosquito abatement channels which have free tidal exchange directly with San Pablo Bay. There is about 2.5 miles of bay frontage with an additional 3 miles of exposure along the banks of Novato Creek.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail and the threatened black rail. Also present is the San Pablo song sparrow. In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here. The soft tidal flats have rich infauna and are part of the Dungeness crab nursery area. The Marin knotweed (Endangered plant) may also occur in these marshes.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) For specific information on historic or cultural resources in this area

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Dr Peter Baye	USFWS Ecological Services	(707) 562-3003	
	Chief Ranger	Marin County Parks and Open Space	(415) 499-6405	
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Barbra Salzman	Marin Audubon Society	(415) 924-6057	(415) 927-3533
	John Takekawa		(707) 557-9880	

2-554 - A Novato Creek Marshes - Site Strategy

Count Marin

NOAA CHART: 18654 San Pablo Bay

Latitude Longitude
38 06 N 122 29 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

Site includes the San Pablo Bay frontage from mouth of Petaluma River (high power wires) extending 2.3 miles southerly to the levee at Hamilton Air Base and includes a mile of Novato Creek to the Bel Mar Keys locks and adjacent marshes.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Aircraft should beware of high power wires in this area. This area is very shallow except in Novato Creek Channel.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

This is very sensitive habitat with rare and endangered species present. Exclude oil from entering Novato Creek to prevent oil from conveying into the north side marsh via tidal channels. Boom tidal inlets to the southerly marsh. Deflect oil away from Novato Creek mouth and this site. Any oil arriving at this site should be deflected to collection locales and prevented from remobilizing where possible. Protect marsh fronts from oiling and oil penetration. Avoid trampling marsh and trampling oil into marsh muds during cleanup. Be aware of oil penetrating animal burrows

SITE STRATEGIES

Strategy 2-554.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Exclusion booming of Novato Creek and the three major and any minor tidal channels south of Novato Creek to prevent oil from penetrating to interior marshes (and upstream tidal channels)

Technique Details

Exclude oil at Novato Creek mouth by deploying 200' of Hboom diagonally across the mouth direct oil to accumulate in a pocket (lined with boom) at the northern shore (if opportunity permits, a cleared or excavated pocket may be prepared to enhance capture and collection for possible skimming). Run boom high onto marsh margin. This deployment requires a midchannel anchorage. Also, boom each of the eight (3 major, 5 minor) small inlets in Novato Creek by staking short lengths of swamp boom to exclude. Exclude oil from entering tidal channels south of Novato Creek with chevron booming of inlets with 100' of boom each. Back with sorbent boom. Repeat deployment if severe oiling or wave action threaten to defeat the strategy.

Strategy 2-554.2

(USCG Strategic Objective: 7) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

When oil is approaching from South or East of Novato Creek, deflect past Novato Creek mouth toward Petaluma River.

Technique Details

Deflection boom: Establish a shore anchorage at least 100 yards south of the Novato Creek mouth and deploy a 1000' of harbor boom at a diagonal to channel marker 23 and across the Novato Creek channel. Make an overlap to permit channel traffic. Deploy 2000' of boom at a slighter angle to the north of the first boom set.

Strategy 2-554.3

(USCG Strategic Objective: 6) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

If heavy oil is threatening to overwhelm the exclusion strategy (.1) for Novato Creek mouth, deploy a vessel skimmer as a backup to the deflection strategy to capture oil.

Technique Details

Deploy a skimmer in the Novato Creek channel as close to the mouth as feasible to capture oil. Deploy booms from right and left banks to funnel oil to the skimmer. Deploy a diagonal boom behind the skimmer to divert any escaping oil to the shore.

Strategy 2-554.4

(USCG Strategic Objective: 8) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Protective booming of the marshy shoreline north of Novato Creek to Petaluma River. Consider that this deployment will require intensive resources and time in the short navigable intervals.

Technique Details

Protection booming of marshfront north of Novato Creek. Deploy a 1500' layer of harbor or swamp boom along the marshy bay frontage from southerly Petaluma River mouth to Novato Creek. Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats capable of stranding without damage. Set boom close to vegetation, as may be possible. Anchor at 1000' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Strategy 2-554.5

(USCG Strategic Objective: 8) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Protective booming of the marshy shoreline south of Novato Creek

Technique Details

Check here means (X) " No strategy diagram"

Check here means () "Contact CCC"

Protect the 2.5 miles of marshy bay frontage south of Novato Creek with 13,000 feet of skirted boom (two layers of river boom are preferable to one layer of harbor boom). Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats. Set boom close to vegetation, as may be possible. Anchor at 1000' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-554.1	500	200		6 6/22+/danforth	400	1	1		shallow bboat capable of grounding, stake	5	2 times daily	5
2-554.2	3000			9 9/22+/danforth with chain		2	1			7	twice daily	7
2-554.3	0	300		2 2/15+/danforth				vess	stakes	3		6
2-554.4	1500			150 15/15+/anchors	0	6	2		very shallow/groundable bboats, 3 stakes	23	twice daily	8
2-554.5	13000			14 14/15+/anchors	0	6	2		very shallow/groundable bboats, 30 stakes	23	twice daily	8

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

There is no vehicle access to this site. The nearest vehicle accesses are at Petaluma River (at Hwy 37) and at Bel Mar Keys (exit Hwy 101 at Ignacio Blvd south of Novato and proceed bay-ward). Via water, proceed bay-ward from Petaluma River and then to the south: a line of channel markers lead from the river channel to the Novato creek channel.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
None except on foot.

WATER LOGISTICS:

Access limitations: depth, obstructions: Channel is very navigable. Very shallow mudflats.

Boat Launching, Loading, Docking and Services Available: Boat ramp, fuel, and berthage at Petaluma River- 1 mile north. There is also less useful launch and moorage at Del Mar Keys.

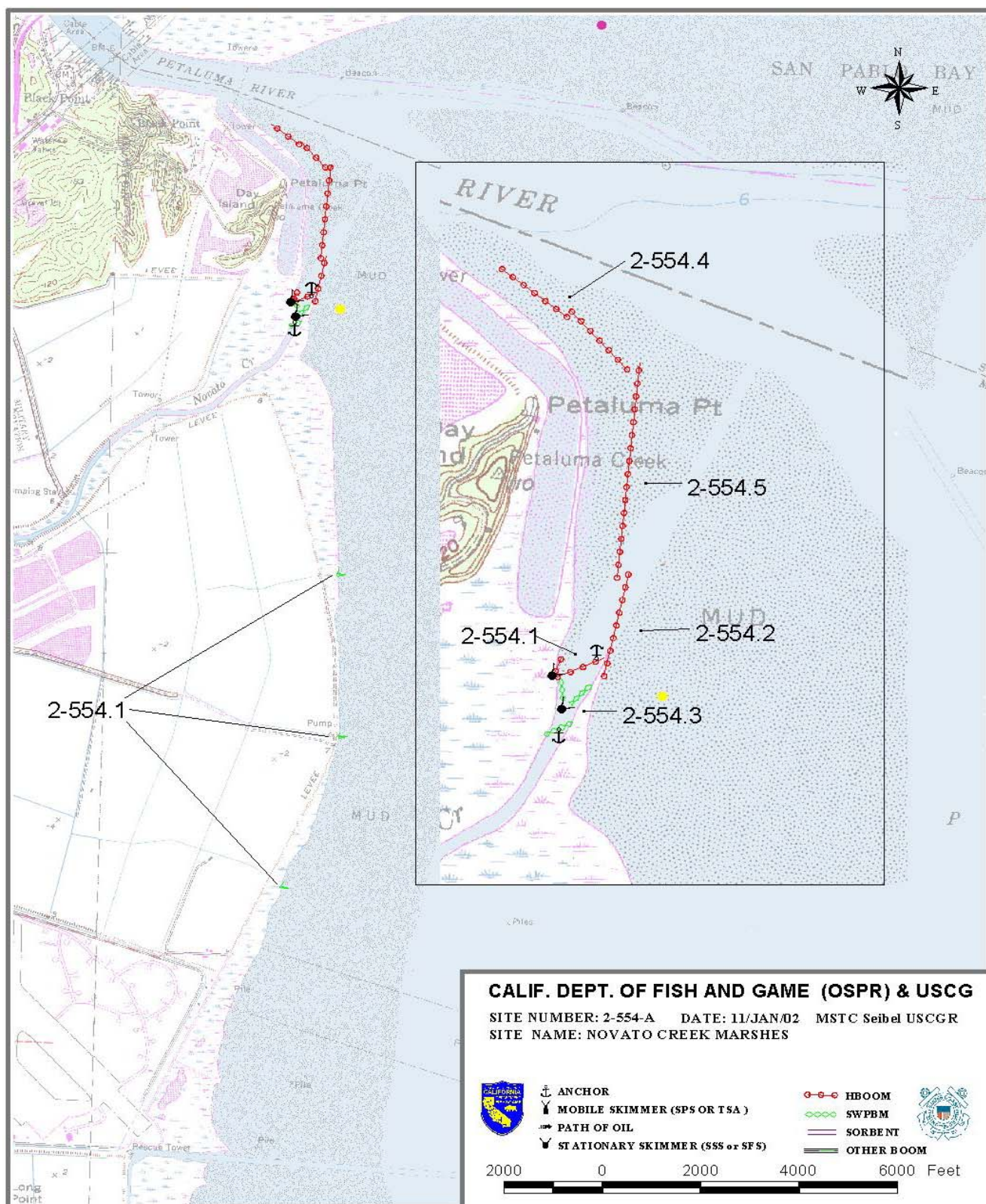
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Best staging site is Petaluma River boat ramp. Also, Sonoma Marina: fuel, berthage, and some services available (water, phones, restrooms, food).

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-554 – A Novato Creek Marshes - Site Strategy Diagram



Petaluma River Marshes - Site Summary

2-571 - A

County: Marin & Sonoma
USGS: Petaluma Point, & River

GRP: **Latitude** 38 06 N **Longitude** 122 29 W
OSPR Map: 144 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

This site begins at the mouth of the river (high power wire area) and continues upstream to Petaluma and includes all the marshes between the river levees and all tidally exposed marshes including "Carl Wilcox" marsh just north of Hwy 37. The Petaluma River has been dike along its length. The river channels are maintained for vessel traffic to the city of Petaluma. There flood plains to the dikes are high marsh with low marsh along the river margins. The marshes extend several miles up the river. There are diked ponds and extensive marshes on either side of Petaluma river. At the mouth, near Hwy 37, there are numerous residences with personal docks and the Sonoma Marina and a public boat ramp.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes are an A priority all year. The snowy plover, least tern, and San Pablo song sparrow nest from March through September. The adjacent mudflats and open waters are heavily used by migratory shorebirds and waterfowl from September through April. Several Special Status Species are found here.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Extensive marshes are exposed via the Petaluma River along its length to the City of Petaluma including bordering emergent marsh, flood plain pickleweed marsh, and adjacent wetlands. Numerous small tidal channels provide tidal exchange to the marshes between the Hwy bridge and the mouth, including a barrow channel at the west bank under the power wires which leads back about a 0.6 miles. There are two restored marshes near the mouth: "Carl Wilcox" marsh immediately north of Hwy 37 and Sonoma Acres, southeast of Sonoma

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail and the California least tern, the threatened black rail and the snow plover, and species of special concern, the San Pablo song sparrow.

In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here. Also present is the salt marsh wandering shrew.

The soft tidal flats have rich infauna and are part of the Dungeness nursery area.

The Marin knotweed, and endangered plant, may also occur in these marshes.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this Marina. area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Joy Albertson	Baylands Nature Preserve	(650) 329-2506	
	Dr Peter Baye	San Francisco Bay National Wildlife Refuge	(510) 792-0222	
	Chief Ranger	USFWS Ecological Services	(707) 562-3003	
	Joshua Dr. Collins	Marin County Parks and Open Space	(415) 499-6405	
	Mike Josselyn	Aquatic Habitat Institute	(510) 213-9539	
	Jan Knight	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Betsy Radtke	US Fish and Wildlife Service	(916) 978-4866	
	Barbra Salzman	US Fish and Wildlife Service	(707) 552-6213	
	Bob Stewart	Marin Audubon Society	(415) 924-6057	(415) 927-3533
	Jim Swanson		(415) 498-6405	
	John Takekawa		(707) 557-9880	

2-571 - A Petaluma River Marshes - Site Strategy

Count Marin & Sonoma

NOAA CHART: 18654 San Pablo Bay

Latitude 3 8 06 N Longitude 1229 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

This site begins at the mouth of the river (high power wire area) and continues upstream to Petaluma and includes all the marshes between the river levees and all tidally exposed marshes including "Carl Wilcox" marsh just north of Hwy 37.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Aircraft beware of high power wires. There are shallows at margins.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

There are extensive salt marshes both at the mouth the Petaluma River and upriver, which are sensitive to oil. These strategies are intended to protect those marshes by excluding oil from moving from the bay up the river and into the little tidal channels at the mouth. Avoid trampling vegetation. Be aware that small endangered plants and animals are present. Avoid trampling oil into muds.

SITE STRATEGIES

Strategy 2-571.1

(USCG Strategic Objective: 5,6) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Primary exclusion/collection strategy for Petaluma River and NW San Pablo Bay: divert oil to shore collection and boom tidal channels.

Technique Details

The collection site is at the public access immediately south of the launch ramp. Direct oil to this site by running boom from the east bank just bayward (south) of the Railroad trelis to the channel (500'), and then continue boom in cascades (1800' in 500-300' cascades), gradually angling oil out of the channel to the collection pocket. The collection pocket should be lined with river boom and parallel the cascaded boom for 400'. (Contact Marin County Parks and Open Space about excavating an improved collection pocket as necessary.) Back collection area with sorbent boom. Line the west shoreline with boom (outside the line of private docks) as far as the railroad bridge. In the cascaded boom, leave an overlap opening for vessel traffic. There are about 15 tidal channels (11 on the east bank and 3 on the west bank) between the railroad bridge and the power lines including an opening just northeast of the Hwy

Strategy 2-571.2

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Collection strategy for controlling oil threats to Petaluma River and NW San Pablo Bay by diverting to onwater skimmer.

Technique Details

Deploy a 2500' diagonal of harbor boom from the east side of the mouth of Petaluma River under the power wires (about 150' off shore) to the second dock on the west bank. Use cascading (500') to permit vessel passage. From the west bank run 500' of boom (swamp or harbor) to the skimmer. These two boom arms result in a V-collection configuration directing oil across the current to a skimmer positioned just off the second dock.

If the tidal openings have not been closed using the previous strategy: then there are about 15 tidal channels between the railroad bridge and the power lines plus an opening just northeast of the Hwy bridge which require chevron exclusion booming which will require and additional 800' of swamp or larger boom and 15 additional anchors and stakes.

Strategy 2-571.3

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

If oil originates upstream or gets past exclusion strategies at the mouth, deploy collection at best possible locale.

Technique Details

Check here means (X) "No strategy diagram"

Check here means () "Contact CCC"

Execute strategy as described in strategy .2 at the most favorable locale available. A similar amount of equipment including on-water skimmer will be required.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-571.1	2300	2800		35 14/22+ and 21/15+/danforths w	chain	300	2	0	1 skim	40 stakes and 1000' of line	13	2 plus skimming 5,6
2-571.2	2500	500		12 12/12+/anchors with chain			2	1	1 self-	shallow draft bboats	7	2 plus staff on 5
2-571.3	2500	500		12 12/12+/anchors with chain			2	1	1 self-	shallow draft bboats	7	2 plus staff on 5

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

The Petaluma River mouth vicinity is accessible by Hwy 37 from either Vallejo or Novato. To Petaluma Point, turn off Hwy 37 at Harbor drive. Follow Harbor drive to Grandview Ave and turn onto Grandview Ave. Turn left on Murphy Lane and right onto Deibe road. Turn right on Norton Ave, turn left on Railroad Ave, and follow it out to the end. To reach the inlet by Channel drive, turn off Hwy 37 at Harbor drive and then turn on Channel drive. Follow it until the end.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
There is good access at Hwy 37, otherwise by foot only

WATER LOGISTICS:

Access limitations: depth, obstructions: Channel is very navigable. Very shallow mudflats.
Boat Launching, Loading, Docking Launching is available on site at public boat ramp. Fuel, moorage and some services are
and Services Available: available at Sonoma Marina.

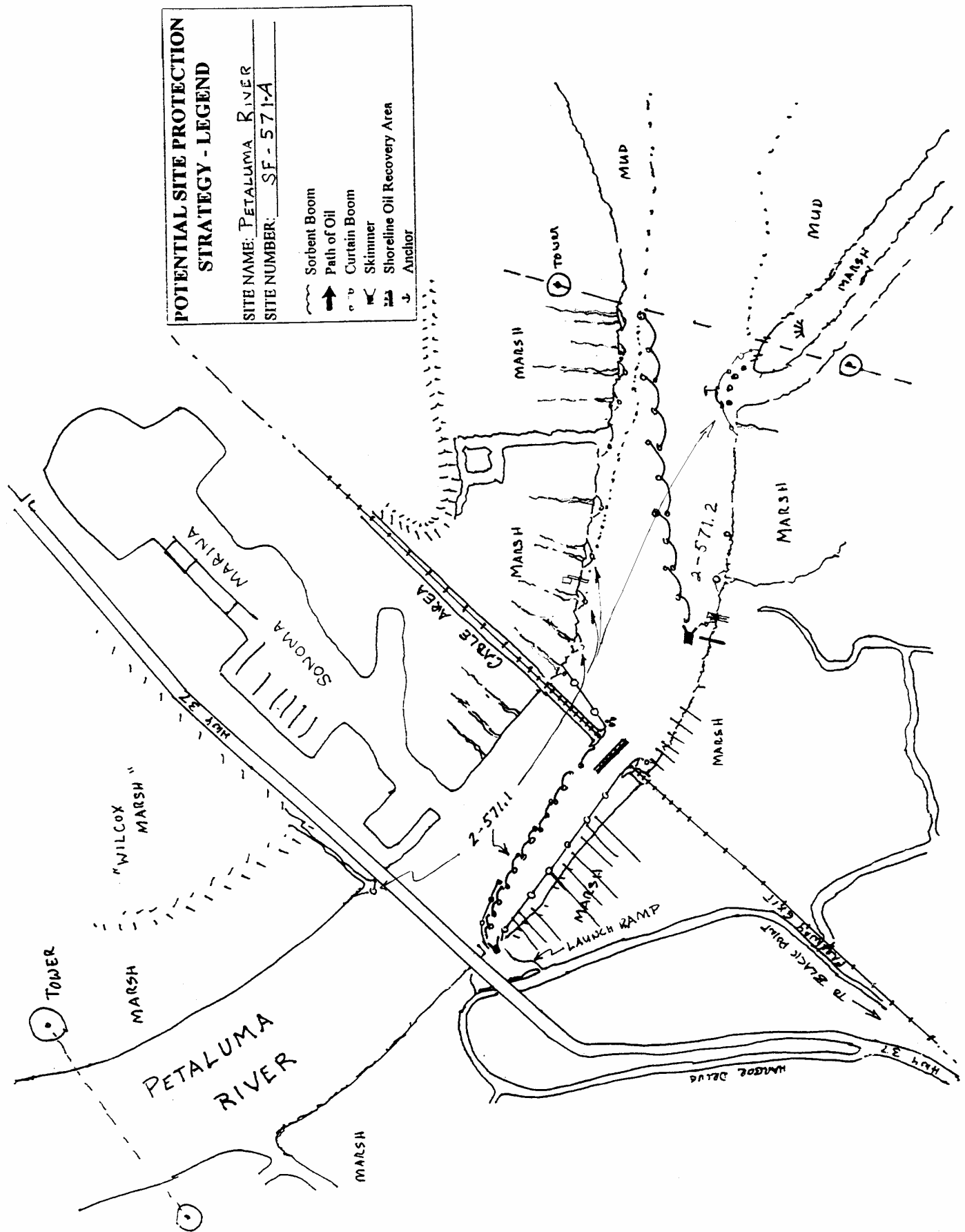
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Sonoma Marina has best suite of facilities for staging, hq, phones, services, and some food. The launch ramp may also be used for staging and parking: no other facilities are present except portapotties.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-571 - A Petaluma River Marshes - Site Strategy Diagram



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Tolay Creek Marshes - Site Summary

2-572 - A

County: Sonoma
USGS: Petaluma Point

GRP: **Latitude** 38 07 N **Longitude** 122 02.7 W
OSPR Map: 144 **Last ACP Update** 2000-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Site includes the San Pablo Bay frontage from mouth of Petaluma River to a mile east (to Tubbs Island) of the mouth of Tolay Creek (Midshipman's Point) and includes 3 miles of Tolay Creek to Hwy 37 and adjacent tributary wildlife areas. The marshes between Petaluma River and Tolay Creek are prograding and shallow very gradually, supporting 100 to 200 meter wide continuum of biota from tidal flat to high marsh: unvegetated to chord grass to pickleweed dominated. Tolay Creek itself is an incised channel through a wide flood plain (300+ meters) of pickleweed marsh and bounded by aged levees. The creek and marshes are much less extensive north of Hwy 37. The two wetlands wildlife areas bordering the east side of Tolay Creek, connect via gated channels and culverts. The DFG marsh abuts Hwy 37. The much larger USFWS property abuts San Pablo Bay at Tolay Creek mouth with a mile of riprap dike frontage to the east and has three additional openings exchanging directly with the Bay. Another marsh, Sonoma Bay Lands Wetland, has an open tidal exchange channel about a mile and a half west of Tolay Creek. Midshipman's point is used by harbor seals as an occasional haulout.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

This is an A-priority site all year due to the extensive marshes. Several Special Status Species occur here: including three endangered and one threatened species. These marshes and the adjacent tidal flats are heavily used by migratory shorebirds and waterfowl from September through April.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Extensive marshes are exposed via Tolay Creek including bordering emergent marsh, flood plain pickleweed marsh, and adjacent controlled wetlands. The bay frontage to the west has extensive chord grass and pickleweed marshes and the west has tidal openings to wetlands behind bay front levees.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

This is excellent rearing and wintering habitat for marsh bird life including waterfowl and marsh birds. Special Status Species found here include the endangered California clapper rail, the threatened black rail, and species of special concern, the salt marsh common yellowthroat and the San Pablo song sparrow nest here.

In addition to the normal diversity of marsh mammals found in this habitat, the endangered saltmarsh harvest mouse is found here. The salt marsh wandering shrew also inhabits this area. Harbor seals occasionally haul out on Midshipman's Point at high tide.

This area has rich infauna and is part of the Dungeness nursery area.

The Marin knotweed, an endangered plant, may also be found in these marshes.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
		Baylands Nature Preserve	(650) 329-2506	
	Sarah Allen	Pt. Reyes National Seashore	(415) 464-5187	(415) 464-5182
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322	
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Diane Kopec			
	Barbra Salzman	Marin Audubon Society	(415) 924-6057	(415) 927-3533

2-572 - A Tolay Creek Marshes - Site Strategy

Count Sonoma

NOAA CHART: 18654 San Pablo Bay

Latitude 3 8 07 N Longitude 122 02.7W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

Site includes the San Pablo Bay frontage from mouth of Petaluma River to a mile east (to Tubbs Island) of the mouth of Tolay Creek (Midshipman's Point) and includes 3 miles of Tolay Creek to Hwy 37 and adjacent tributary wildlife areas.

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

This area is very shallow except in Tolay Creek Channel.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

This is very sensitive habitat with rare and endangered species present. Exclude oil from entering Tolay Creek and wetlands to the east: boom creek mouth and tidal channels and close tide gates. Deflect oil away from this site. Any oil arriving at this site should be deflected to collection locales and prevented from free movement where possible. Protect marsh fronts from oiling and oil penetration. Avoid trampling marsh and trampling oil into marsh muds during cleanup. Be aware of oil penetrating animal burrows.

SITE STRATEGIES

Strategy 2-572.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Exclude oil from Tolay Creek and other openings to marsh. Access by skiff from land or via water route.

Technique Details

Deploy 500' of 6X6+ boom across the mouth of Tolay Creek in a modified diagonal from a point halfway bayward from creek mouth to Midshipman's Point across channel to a point about 50' west of the mouth, with this anchor point well high in the marsh. A midpoint anchor must be positioned in the channel (just off the east bank) to keep the boom from sagging into a catenary curve. Back with a sorbent boom layer. Repeat configuration if there is a wind chop or waves. This deployment should prevent oil from moving up Tolay Creek and direct impingent oil to beach on the shore just to the east. Exclude oil from entrance of Sonoma Bay Lands Marsh 1 mile west of Tolay Creek with 100' 6X6+ Hboom. Also deploy 50' chevron exclusion booms in front of each of the three tidal culverts to the east of the creek mouth. Close the tidal gate at the levee near the creek mouth.

Strategy 2-572.2

(USCG Strategic Objective: 7) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Divert to prevent oil from moving up channel while in San Pablo Bay still away from shoreline.

Technique Details

Diversion booming: If oil is posing a threat, it will move up channel which cuts across the shallow flats of San Pablo Bay. A diversion boom across that channel to divert oil out of the tidal current and onto flats, will afford protection to the Creek mouth. Divert to windward. Deployment will require 200 ft of harbor boom. Deploy at higher tide with a shallow draft boom boat.

Strategy 2-572.3

(USCG Strategic Objective: 8) Dates: SISRS Approved last tested ACP date
1999-05-25 2000-01-01

Objective or Prevention Condition

Protection booming to prevent oil from accumulating along the marshy shoreline of San Pablo Bay Consider that this deployment will require intensive resources and time in the short navigable intervals.

Technique Details

Check here means

(X)" No strategy diagram"

Check here means

() "Contact CCC"

Deploy a layer of harbor or swamp boom along the marshy frontage from Tolay Creek mouth westerly to Petaluma River mouth. Deploy during periods of higher tides to permit approach near shore using shallow draft boomboats. Set boom as close to vegetation as possible. Anchor at 600' intervals and stake as necessary to secure. Under severe oil threat, two layers and a sorbent backup may be required. Two layers of swamp boom set about 10 feet apart would be equivalent to harbor boom.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-572.1	0	750		6 6/22+/danforth	400	0	1		stakes to aid in securing	2	daily checks	5
2-572.2	200			3 3/22/anchors		1	0		shallow draft boomboat	3	daily checks	7
2-572.3	10500			65 65/15+/anchors		5	2		shallow draft bboats which can strand	20	twice daily	8

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Vehicle access to the mouth of Tolay Creek is from Hwy 37 though the locked gate (USFWS) at the DFG wildlife area parking lot (1/2 mile east of Tolay Creek on south side of Hwy) on rough levee roads. By boat, proceed northerly from Petaluma River Channel in San Pablo Bay to creek mouth.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
Marginal for large trucks. Seasonally impassible on earth levees.

WATER LOGISTICS:

Access limitations: depth, obstructions: Channel is very navigable. Very shallow mudflats.
Boat Launching, Loading, Docking Boat ramp, fuel, and berthage at Petaluma River- 2 miles west. Punt launch at Midshipman Pt
and Services Available: and Hwy 37.

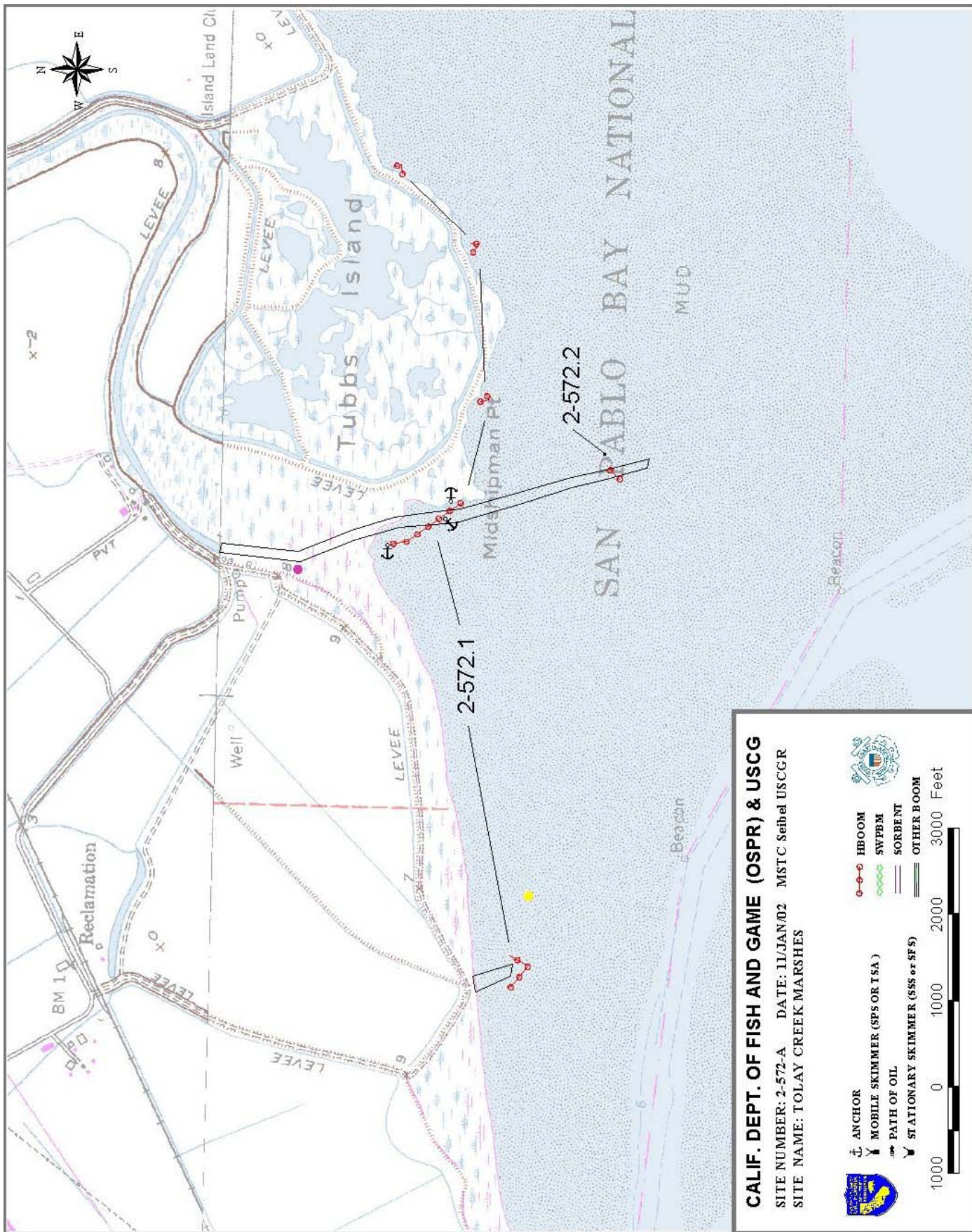
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

Best staging site is Petaluma River boat ramp. Also, Sonoma Marina: fuel, berthage, and some services available (water, phones, restrooms, food). Small skiff deployments can be staged at Tolay Creek at mouth or Hwy 37.

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

Tolay Creek Marshes - Site Strategy Diagram



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Sonoma Creek / Napa Slough - Site Summary

2-581 - A

County: Sonoma, Napa, & Solano
USGS: 7.5" Quad: Sears Point

GRP: 5 **Latitude** 038 009 N **Longitude** 122 024 W
OSPR Map: 140 **Last ACP Update** 1994-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Sonoma Creek and Napa Slough have a common mouth open to the northern end of San Pablo Bay. Levees control the waters of Sonoma Creek and Napa Slough. There are narrow marshes between the levees and the main channels, and between the levees and the waters of San Pablo Bay. There are extensive mud flats along the north shore of the bay.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes are an A priority all year. The Snowy plover, Least Tern, and San Pablo Song Sparrow nest from March through September. The adjacent Mudflats and open waters are heavily used by migratory shorebirds and waterfowl from September through April.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

The marshes are important habitat for several endangered species:

This is an area of major importance to migrating waterfowl during the spring and fall migrations. Resting and feeding shorebirds are often abundant in this area.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

Saltmarsh harvest mouse, Endangered species present are: Saltmarsh harvest mouse, California Clapper Rail, California Least Tern, Brown Pelican, and Peregrine Falcon, and threatened species: California Black Rail and Snowy Plover, Salt marsh Yellowthroat.. Other species of concern are: San Pablo Song Sparrow and the salt marsh wandering shrew. Several rare plants also live here, Marin knotweed, Polygonum marinense, delta tule-pea, Lathyrus jepsonii, soft bird's beak, Cordylanthus mollis ssp. Mollis, and Susin aster, Aster chilensis var. lentus.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Joy Albertson	San Francisco Bay National Wildlife Refuge	(510) 792-0222	
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322	
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Betsy Radtke	US Fish and Wildlife Service	(707) 552-6213	
	Jim Swanson			
	Jean Takakawa	S F Bay National Wildlife Refuge		
	John Takekawa		(707) 557-9880	

2-581 - A Sonoma Creek / Napa Slough - Site Strategy

Count Sonoma, Napa, & Solano NOAA CHART: San Pablo Bay 18654

Latitude Longitude
038 009 N 1229 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Sonoma Creek and Napa Slough have a common mouth open to the northern end of San Pablo Bay. There are extensive mud flats along the north shore of the bay.

SITE STRATEGIES

Strategy 2-581.1

(USCG Strategic Objective: 5) Dates: SISRS Approved last tested ACP date
1994-01-01

Objective or Prevention Condition

Deflection/Collection: Prevent oil from entering Sonoma Creek and Napa Slough.

Technique Details

The confluence of Sonoma Creek and Napa Slough (1500 ft N of HWY 37 bridge) is just before the mouth of San Pablo Bay. Prevent oil from entering into the mouth. Otherwise oil will spread into the numerous passages and channels that feed into Sonoma Creek and Napa Slough. 2,000 ft of harbor boom and 400 ft of tidal barrier boom will be required to protect the Sonoma Creek and Napa Slough.

Collection Points: On an incoming tide, oil can be collected by diversion boom at the mouth of the system. The diversion boom can lead to either side of Hwy 37 where it crosses the Creek and Slough. If oil is exiting Sonoma Creek to San Pablo Bay, diversion boom can collect the pollutant at the bend 3/4 mile northwest of the mouth.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-581.1	2000		400	10 8-10, 25lb. Danforths			1 self-		8		5

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Hwy 37 crosses Sonoma Creek / Napa Slough between Novato and Vallejo. There are turnouts on both sides of the bridge to reach the collection points. To reach the collection point on Sonoma Creek, turn north on the road approximately 3/4 mile west of the Hwy 37 bridge over the Creek and Slough. Follow the road to the end, where it will split and follow the curve of the bend. To reach the collection point on the Napa Slough, turn north on the road at the east end of Hwy 37 bridge over the Creek and Slough. Follow the road along the south bank of the slough until the end at the Wes End Land Club.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)

WATER LOGISTICS:

Access limitations: depth, obstructions:

Boat Launching, Loading, Docking

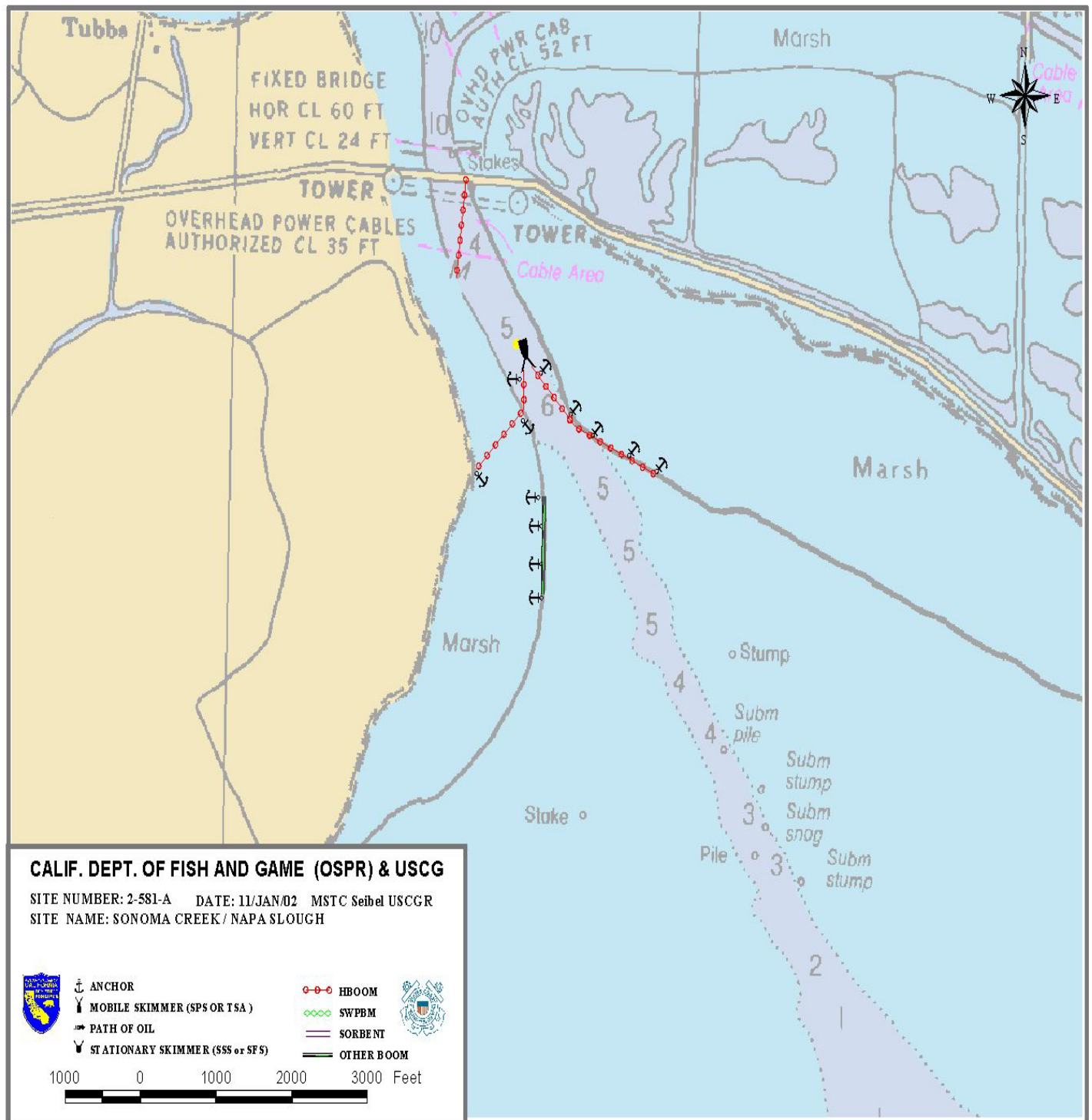
and Services Available:

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

COMMUNICATIONS LIMITATIONS / PROBLEMS: No Problems

ADDITIONAL COMMENTS

2-581 – A Sonoma Creek / Napa Slough - Site Strategy Diagram



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N.E. San Pablo Bay - Site Summary

2-582 - A

County: Solano
USGS: 7.5 Quad: Mare Island

GRP: 5 **Latitude** 038 005 N **Longitude** 122 017 W
OSPR Map: 145 **Last ACP Update** 1994-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

The northeast shore of San Pablo Bay is bounded by a 200 to 1200 meter wide marsh of approximately 1600 acres between the levees and the mudflat. The intertidal mudflat is approximately 1000 meters wide. Before construction of levees, the marsh extended another 10 km to the north and east. A formerly more extensive marsh was diked and filled long ago.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes and adjacent mudflats are an A priority all year.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

The marshes and adjacent mudflats are an A priority all year. Thousands of waterfowl congregate on the water to the south of this site during the fall and winter months.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

The marshes are inhabited by the endangered California clapper rail, *Rallus longirostris obsoletus*, and salt marsh harvest mouse, *Reithrodontomys raviventris*. The California black rail, *Laterallus jamaicensis coturnicullus*, a threatened species, and the Suisun shrew, *Sorex ornatus sinuosus*, a species of special concern, also occur in the area. Two rare plant species live here: soft bird's beak, *Cordylanthus mollis* ssp. *Mollis*, and Suisun aster, *Aster chilensis* var. *lentus*. Resting and feeding shorebirds are often abundant on the mudflats and in the marshes

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322	
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866	
	Bill Lidicker	UC Berkeley	(510) 642-1379	
	Betsy Radtke	US Fish and Wildlife Service	(707) 552-6213	
	Jean Takakawa	S F Bay National Wildlife Refuge		

2-582 - A N.E. San Pablo Bay - Site Strategy

Count Solano

NOAA CHART: San Pablo Bay 18654

Latitude Longitude
03 8 005 N 1229 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into

The large expansive marsh and wetland in the northeast corner of San Pablo Bay would be very difficult to protect because of its limited access. Impacts may occur because of the exchange of water and overlapping waves over and under the jetty.

SITE STRATEGIES

Strategy 2-582.1

(USCG Strategic Objective: 58)Dates: SISRS Approved last tested ACP date

1994-01-01

Objective or Prevention Condition

Deflection booming to prevent oil from coming in contact with the marsh vegetation.

Technique Details

Deploy deflection booms (3-100 ft sections) on jetty to keep oil from entering through the jetty. Deploy seven, 1,000 ft deflection booms at the end of the jetty. Position 2 skimmers at leading tail of jetty boom. Block marsh channel and holes in breakwater using combinations of sorbents, hay bales, sandbags, and plastic sheeting.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff	No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-582.1	7300	0	0	25 22 to 25, 25 lb. Danforths		200 2	2	2 self	sandbags, 5 rolls plastic, baled hay	11		58

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Take I-80 to Hwy 37 East White Slough lies on either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)
foot only

WATER LOGISTICS:

Access limitations: depth, obstructions:

Boat Launching, Loading, Docking

and Services Available:

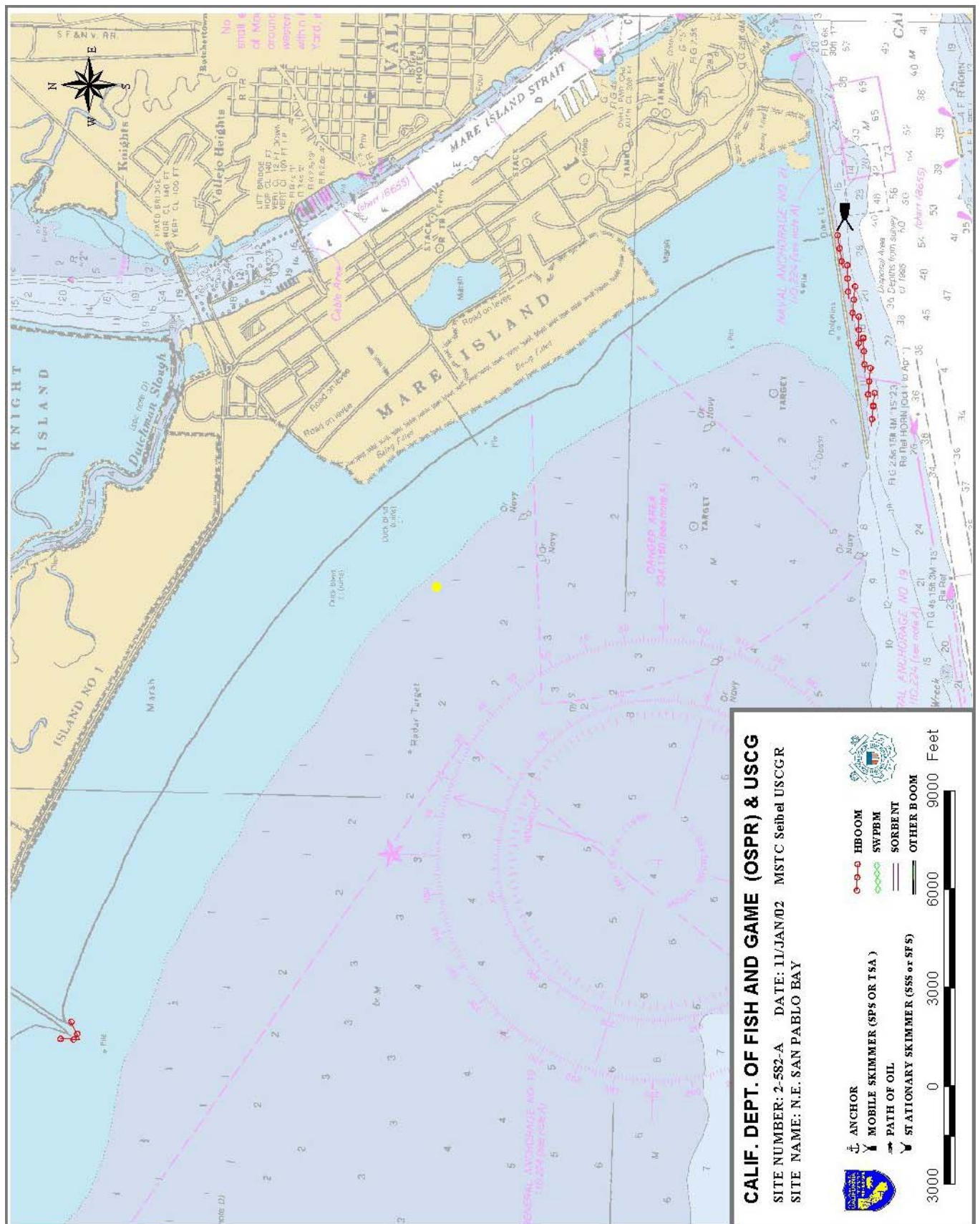
FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

COMMUNICATIONS LIMITATIONS / PROBLEMS:

No Problems

ADDITIONAL COMMENTS

2-582 – A N.E. San Pablo Bay - Site Strategy Diagram



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Napa River Marshes - Site Summary

2-583 - A

County: Napa, Solano
USGS: 7.5" Quad: Cuttings Wharf

GRP: 5 **Latitude** 038 012 N **Longitude** 122 019 W
OSPR Map: 141 **Last ACP Update** 1994-01-01

SITE DESCRIPTION: (general characterization of site - geomorphology, habitat, exposure, currents)

Although the banks of the Napa river and adjacent sloughs are diked in many areas, in others there are extensive undiked marshes and mudflats. These undiked marshes are connected to the river by numerous channels. Elsewhere there are narrow marshes and tidal flats between the levees and the main channels.

SEASONAL and SPECIAL RESOURCE CONCERNS

(seasonal issues, special status spp present, water intakes)

The marshes are an A priority all year.

RESOURCES AT RISK

HABITATS AT RISK: (biological habitats including time of year when most sensitive and vulnerable)

Coon Island and Fagen Slough are the most important sites in the Napa River. Habitat includes marshes and mudflats.

SPECIES/COMMUNITIES AT RISK: (Brief summaries including time of year when most sensitive/vulnerable)

The marshes are probable habitat for the endangered California Clapper Rail, the threatened California Black Rail, and the endangered salt marsh harvest mouse. Several rare plants also live here, Marin knotweed, Polygonum marinense, delta tule-pea, Lathyrus jepsonii spp jepsonii, soft bird's beak, Cordylanthus mollis ssp. Mollis, and Suisun aster, Aster chilensis var. lentus. Resting and feeding shorebirds are often abundant in this area.

CULTURAL and ARCHEOLOGICAL SENSITIVITIES

Contact the California Dept of Parks and Recreation - Office of Historic Preservation (Eric Allison -(916) 653-9125), and the Northwest Information Center, (Leigh Jordan, Sonoma State College ((707) 664-0880)) for specific information on historic or cultural resources in this area.

KEY SITE CONTACTS - - type: E-ntry/access; B-iological expertise; L-ogistical; C-ultural; T-rustee; or O-ther assistance

Type	Name	Organization	Phone	FAX
	Peter Baye	U S Army Corps of Engineers	(415) 744-3322	
	J. T. Dr. Harvey	Moss Landing Marine Laboratory	(831) 755-8650	
	Mike Josselyn	National Marine Fisheries Service, Tiburon	(415) 454-8868	
	Jan Knight	US Fish and Wildlife Service	(916) 978-4866	
	Betsy Radtke	US Fish and Wildlife Service	(707) 552-6213	
	Jim Swanson			
	John Takekawa		(707) 557-9880	

2-583 - A Napa River Marshes - Site Strategy

Count Napa, Solano

NOAA CHART: San Pablo Bay 18654

Latitude 038 012 N Longitude 122 29 W

SITE LOCATION: boundaries, landmarks, area to locate and delimit

HAZARDS and RESTRICTIONS - Air, Water & Ground - things to beware of when approaching or at site

Shallow water, submerged obstructions likely, eelgrass may foul propellers. Wind chop to three feet possible.

POTENTIAL OIL IMPACTS - CONCERNS/ ADVICE to RESPONDERS: (regarding sensitive species present, penetration into or sediments, burial, organism burrows, tidal channel spreading, watertable limitations, collateral impacts)

Large extensive salt marsh both north and south of throughout the Napa River. Access can be difficult so emphasis should be put on stopping oil from entering into the marsh area.

SITE STRATEGIES

Strategy 2-583.1

(USCG Strategic Objective: 5,6) Dates: SISRS Approved last tested ACP date 1994-01-01

Objective or Prevention Condition

Deflection/Collection: Deflect oil before it enters into the marsh area. There is little or no access once within the marsh. Use of diversion boom should be used to prevent oil from reaching the Strait.

Technique Details

1) Deflect oil to a collection area near the entrance of Mare Strait at the Coast Guard dock using the jetties located on Mare Island and Vallejo (6,000 ft.). Two skimmers are required.

2) If this strategy is not successful, an additional 5,000 ft of harbor boom may be necessary to protect the marsh, mudflat, and docks located approximately one mile upstream from entrance.

Table of Response Resources

sub- strategy	harbor boom	swamp boom	other boom / type	Number and kind of Anchoring system	sorb boom	Boom boat	Skiff No / type skimmer	Number and kind of special equipment	deploy staff	staff for tending	SO
2-583.1	6000			15 12-15, 25 lb. Danforth		2	2		11		5,6

LOGISTICS

DIRECTIONS: to site (by land and/or by water, to nearest launch ramp and are access permits required.)

Take I-80 to Hwy 37 East White Slough lies on either side of Hwy 37 between Sonoma Blvd and the Napa River Bridge. To get to Vallejo Launch Ramp take Wilson Ave South from Hwy 37. From the Launch Ramp Follow the E. Bank of Mare Island SE N. Hwy 37.

LAND ACCESS LEVEL: (foot only, 2WD, large truck, 4WD, road limitations...seasonality...locked gates)

WATER LOGISTICS:

Access limitations: depth, obstructions:

Boat Launching, Loading, Docking Vallejo Marina
and Services Available:

FACILITIES, STAGING AREAS, POSSIBLE FIELD POSTS AND EQUIPMENT AVAILABLE:

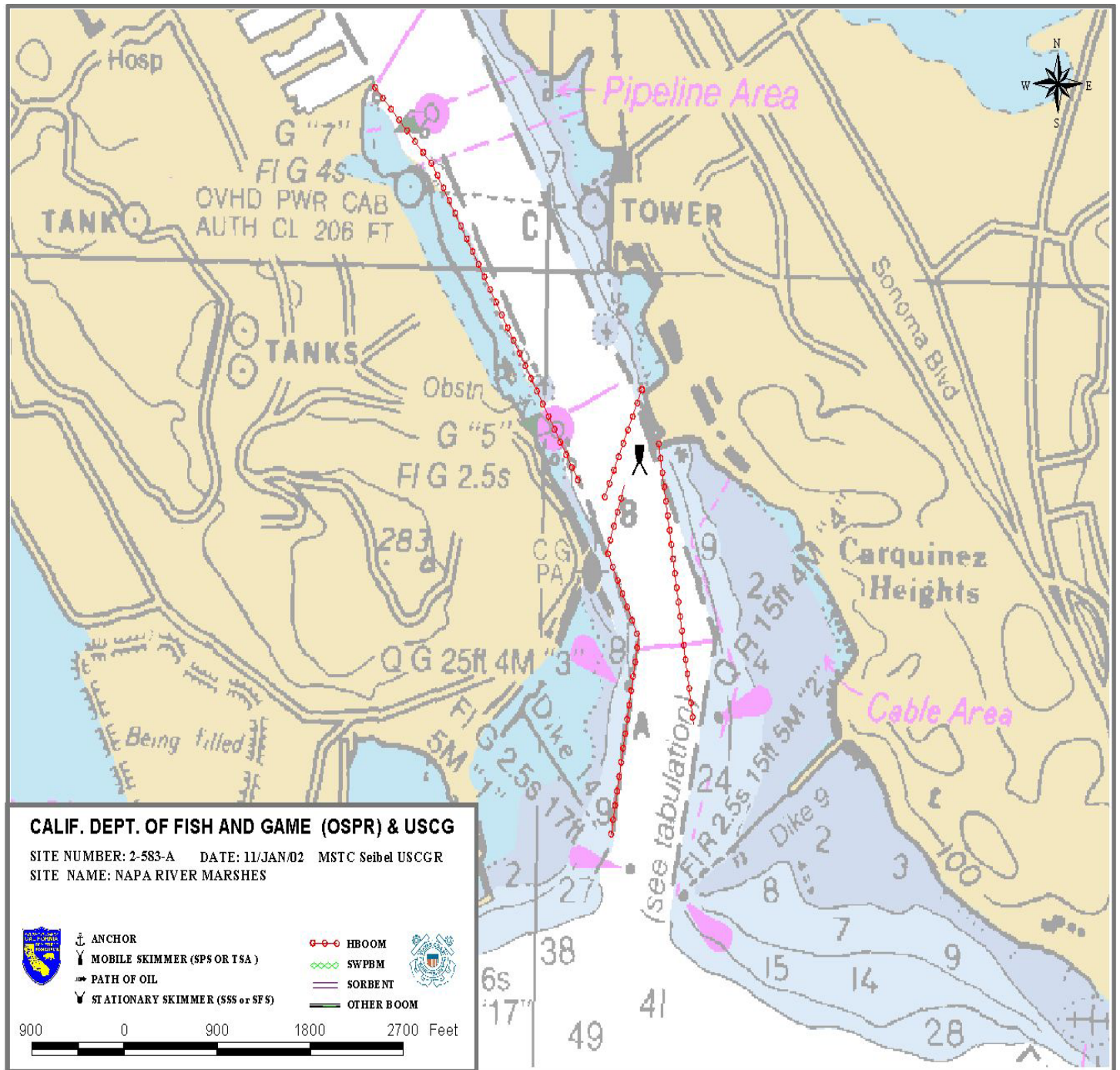
Vallejo Marina, Mare Island Naval Sta., parking lot under Hwy 37, Guadel Canal Village, & Solano County OES.

COMMUNICATIONS LIMITATIONS / PROBLEMS:

No Problems

ADDITIONAL COMMENTS

2-583 - A Napa River Marshes - Site Strategy Diagram



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